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ABSTRACT

A study examined whether student performance in some of the basic skills of editorial design would improve with practice. Subjects, 67 college juniors enrolled in an introductory course in graphic communication, were divided into four groups: male, female, students with ACT scores in mathematics of 14 or below, and students with ACT scores in mathematics of 15 or above. The subjects were assigned a series of four problems in "editorial mechanics" at various times during the semester. The degree of difficulty was increased from a typical first problem to the equivalent of entry-level work. The subjects were not given any special preparation for the problems. Results revealed no differences in the performance of male and female students. ACT scores in mathematics had no significant effect on performance. The findings suggest that introductory students will require additional instruction and practice time in order to solve problems that represent entry-level skills in editorial mechanics. (Extensive appendixes--two-thirds of the document--contain copies of the course syllabus and of the four problems used in the study.) (FL)

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ED270751

THE EFFECT OF PRACTICE ON THE BASIC MECHANICS OF EDITORIAL DESIGN

A Research Paper Submitted to the
VISUAL COMMUNICATION DIVISION
AEJMC

4 MARCH 1986

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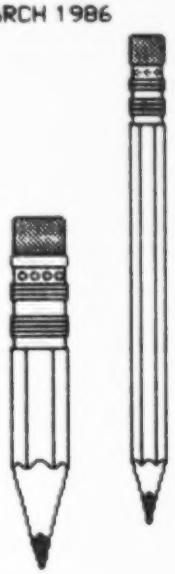

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CS209767

ABSTRACT

"The Effect of Practice on the Mechanics of Editorial Design"
by Donald E. Hill

This study was conducted at Middle Tennessee State University, Murfreesboro, Tennessee, during the Fall Semester 1985. The subjects were 67 junior-level mass communications students enrolled in the course "MC 301 Introduction to Graphic Communications." The subjects were divided into four groups; (1) male, (2) female, (3) students with ACT scores in mathematics of 14 and below and (4) students with ACT scores in mathematics of 15 and above.

The primary purpose of this study was to determine if performance in some of the basic skills of editorial design would improve with practice. A series of four problems in "editorial mechanics" were assigned at various times throughout the semester. The degree of difficulty was intentionally increased from a typical first problem to the equivalent of entry-level work in the last problem. The definition of editorial mechanics was limited to the activities involved in "scale of reproduction" and "typefitting." However, the students were not given any special preparation for the problems--only the few standard lessons that might be expected in an introductory course in graphic communications.

The general research hypothesis for the study was that student performance in editorial mechanics can be expected to improve with practice. Three null hypotheses were formulated to test for differences between the various groups, and to identify interaction among the variables in the study. A two-way analysis of variance, with repeated measures, was used to analyze the data at the .05 level of significance.

Whether or not the student was male or female made no difference in the study. While there was a decline in ability for both male and female groups, it was not significant at the .05 level. Students with an ACT score of 14 and below, showed more of a decrease in mean scores than students with an ACT score of 15 and above. However, the difference was not significant. The negative change in mean scores for all subjects over the series of four problems was significant at the .05 level. The decline in mean scores was the result of increased difficulty and complexity of the problems and not due to chance factors.

It may be concluded that introductory students will require additional instruction and practice time in order to solve word problems that represent entry-level skills in editorial mechanics. In the best of introductory graphics courses, even in a well-organized and rigorous course as MC 301 used in this study, where every lesson is illustrated and comes with an information sheet and a practice problem--students will still need time to master entry-level mechanics in editorial design.

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"The Effect of Practice on the Mechanics of Editorial Design"
by Donald Eugene Hill

INTRODUCTION TO THE STUDY

An introductory course in graphic communications should concentrate on basic techniques that are required for entry-level work. Superficiality of subject matter should be avoided. There should be an emphasis on individual performance. Whatever the curriculum or program, the introductory course is the time and place to expose communications students to the informational and technical complexity that awaits them in the real world of work. "A good program in graphic communications is one that makes your first, entry-level job seem like a sunday school picnic." Accordingly, this study exemplifies a professional approach to introductory subject matter in graphic communications, and demonstrates the use of tried and tested learning materials for organization of activities and evaluation of behavioral objectives.

In the last few years, there has been little research into the instructional methodology of graphic communications.[1] A few recent studies have focused on the video display terminal and its use in the classroom--mostly from the viewpoint of speed and accuracy in journalism copy-editing.[2] The study of opinion and correlation research are alive and well in America.[3] Occasionally, newspaper and magazine typography is a subject of study.[4] At a time of significant change in communications technology, when much of the dialogue is about such things as computers in graphic design, videotex, MacPaint, video digitizers--it is important to study the basic teaching methods that are absolutely essential for quality education. Accordingly, one of the main reasons for this study is to encourage the improvement of instruction in graphic communications. This is the main reason for the many samples of instructional materials that can be found in the appendices of this study.

DEFINITION OF EDITORIAL MECHANICS

There are many activities that may be considered a part of the general mechanics of editorial design. The work of sizing photographs and fitting type are matters of great concern for teachers of introductory courses in graphic communications. Since photographs and type are the major elements of media design, it is imperative that entry-level practitioners

learn how to manipulate them. The tasks of changing, altering, and otherwise fitting photographs and type into format spaces are referred to as "scale of reproduction" and "typefitting," respectively. In this study, typefitting is the best trade term, inasmuch as copy was not involved in the problems. The work of typefitting was limited to the calculation of point-size lines of type in a given pica depth. When copy is involved, the work is called "copyfitting." When one or both dimensions of a format space are known, typefitting is the first step in copyfitting.[5]

Scale of reproduction is more than percentage ratios between the dimensions of two elements. In this study, the size of photographic elements is expressed in the form of a "four-item" specification, which is a layout procedure that gives the (1) key number of the element, the (2) original size in picas, (3) final reproduction size, and the (4) camera reproduction percentage that would be required to make a fit of elements in a particular design situation. Since "cropping" is generally the prerogative of the designer in the real world of graphic communications, the decisions on where and how much to crop that would be necessary to make an accurate fit of elements are also shown in a four-item specification. See Appendix A for a few selected examples of how to write and utilize the four-item specification in layout.[6] After which, it will become obvious that instruction in scale of reproduction is more than percentage relationships between two dimensions. As a teaching strategy in graphic communications, this approach to the matter of editorial mechanics will encourage good layout habits and develop confidence in the learner. Moreover, it is intentional that the kind of problems used in this experiment cannot be readily solved with a pocket calculator, but rather require an understanding of design mechanics--the ability to typefit and good skills with a proportional scale.

DESCRIPTION OF THE EXPERIMENT

This study was conducted at Middle Tennessee State University, Murfreesboro, Tennessee, during the Fall (first) Semester 1985. The subjects were junior-level, mass communications students enrolled in four sections of the course "MC 301 Introduction to Graphic Communications." There were 75 students initially enrolled in the course. Of these, 67 were used in the experiment--26 males and 41 females. See Appendix B for a copy of the syllabus for course MC 301.

The subjects were divided into four groups; (1) male, (2) female, (3) students with ACT scores of 15 and above, and (4) students with ACT

scores of 14 and below. As part of the normal laboratory activities of the course, a series of problems was given in "scale of reproduction" and "typefitting." The problems were administered as inclass, pencil-and-paper examinations, and represent the practice "trials" on the criterion variable of the experiment. All tests were proctored by the course instructor. Here is a brief, word description of the problems. The degree of difficulty ranges from average in the first problem to the equivalent of entry-level work in the last problem. Samples of the four problems (with the answers) can be found in Appendix C. Note that all the answers are in the form of detailed layouts, with complete specifications in which dimensions are expressed in picas. The use of the Printer's Point System simplifies the arithmetic of graphic communications, especially when a design calls for an accurate fit of elements into a predetermined, two-dimensional space in layout.

PROBLEM 1: laboratory assignment number 75; use a proportional scale to size three photographs to fit exactly into a two-dimensional space, with no cropping of photographs; make a layout of the solution that shows the correct use of four-item specifications for all elements.

PROBLEM 2: laboratory assignment number 90; size three photographs to fit into a 15-pica newspaper column width, and typefit one copyblock to fit; column depth is limited to 17 inches; cropping allowed on only one photograph; make a layout that shows the final solution to the problem.

PROBLEM 3: laboratory assignment number 98; size and fit two photographs and one copyblock to fit a two-dimensional space; crop one photograph, with margins set at four picas on all sides of the page. Make a layout.

PROBLEM 4: test question on final examination; size and otherwise manipulate two photographs and one copyblock to a specified width of 15 inches; elements must also be equal in pica depth, with cropping permitted on one photograph; show the answer in the form of a layout.

THE GRAPHICS COURSE MC 301

The course used in the experiment, MC 301, is the first course in a 24-hour graphic communications program (sequence) in the Department of mass Communications. The course syllabus is in Appendix B. The majority of students who regularly enroll in the course are advertising majors,

with a few others from typical mass communications sequences--but occasionally, a few students come in from commercial art and industrial technology programs. A three-ring, loose-leaf notebook is the major control used in the course.[7] Each semester, more than one hundred laboratory and homework assignments are made, including the necessary redundancy (repeated) work required to learn the basics of graphic communications. All assignments are accompanied by general information and specific instructions on the work to be done by the student. A collection of samples of course materials can be found in Appendix D.[8]

In course MC 301, there are more than 125 separate lessons, with lessons varying in length from ten to 50 minutes. All lessons are presented as discussions with overhead transparencies--more than 1000 specially prepared transparencies on graphic communications. A few samples of selected transparencies from the lessons on editorial mechanics can be found in Appendix E. Still, you can't teach the basics in a technical course by talking about the subject. Students must actually participate in the learning process, and be regularly evaluated on the basis of behavioral objectives.

PURPOSE OF THE STUDY

The purpose of the study was to determine if performance in basic editorial mechanics would improve with practice. There was an intentional increase in complexity from the first to the last problem. With four opportunities for practice, some improvement would be a normal expectation for beginning students. However, as the problems become more difficult, would there be a reduction in mechanical skills? Is it necessary to increase the amount of instruction and practice time, as mechanics become more difficult to understand by introductory students? Is the change due to experiment treatment or merely the result of chance factors? These are some of the questions to be addressed by this study.

STATEMENT OF HYPOTHESES

The general research hypothesis for this study was that student performance in the basic mechanics of editorial design can be expected to improve with practice. Thus, the following null hypotheses will be tested at the .05 level of significance. In this study, the definition of editorial mechanics has been limited to the activities involved in scale of reproduction (SOR) and typefitting.

Ho 1: No significant difference exists in the mean scores of male students after four practice trials in scale of reproduction and typefitting, and female students after four practice trials in scale of reproduction and typefitting.

Ho 2: No significant difference exists in the mean scores of students with ACT scores of 15 and above in mathematics after four practice trials in scale of reproduction and typefitting, and students with ACT scores of 14 and below in mathematics after four practice trials in scale of reproduction and typefitting.

Ho 3: No significant difference exists in the mean scores of students after one practice trial in scale of reproduction and typefitting, and after four practice trials in scale of reproduction and typefitting.

MEASUREMENT AND ANALYSIS OF RESULTS

An analysis of variance, with repeated measures, was performed to determine any significant difference in the mean scores of subject groups and to test for any interaction among the variables in the study.[9] The mean scores by sex, and all subjects, on the four practice problems in basic editorial mechanics are shown in Table 1.

TABLE 1
MEAN SCORES BY SEX
ON THE FOUR PRACTICE PROBLEMS
IN BASIC EDITORIAL MECHANICS

Variable	N	Practice Problem			
		1	2	3	4
Male	26	43.5	37.3	38.5	24.4
Female	41	45.0	37.5	35.5	31.7
All Subjects	67	44.4	37.4	36.7	28.9

On any one of the problems, a perfect solution would be a score of 50. The

highest mean scores of 43.5 for males, 45.0 for females, and 44.4 for all subjects, were made on the first problem, a relatively simple task of precentage proportion, with no cropping of photographs and no typefitting. While mean scores for both male and female groups decreased over the series of four problems, it was not a significant difference in performance. The null hypothesis for testing the difference on the variable of sex is as follows:

> Ho 1: No significant difference exists in the mean scores of male students after four practice trials in scale of reproduction and typefitting, and female students after four practice trials in scale of reproduction and typefitting.

Table 2 shows the analysis of variance data for testing for differences on the sex variable. While there was a negative change in mean scores for both male and female groups on the four problems, the difference in the two groups was not significant. The F value of 0.59 was not significant at the .05 level. Therefore, Hypothesis 1 was not rejected. There was no significant difference in the ability of male and female students in editorial mechanics as defined in the study.

TABLE 2
Analysis of Variance for Testing Differences
in Editorial Mechanics by Sex of Subject

Source of Variation	df	Mean Square	F	Significance of F
Within Cells	65	242.51		
Constant	01	363790.58	1500.12	0.00
Sex	01	143.91	0.59	0.44

What effect does ACT score in mathematics have on the ability of a student to perform the basic tasks in editorial design? Apparently not much of an influence, at least not on the students in this study.

Table 3 shows the mean scores by ACT group, where Group 14 designates an ACT score of 14 or below, and Group 15 designates an ACT score of 15 or above. The average ACT score in mathematics for the 67 subjects used in this study was 14.5. Thus, the score of 15 was selected as the best place to separate the two groups in order to control the number of subjects in each group (see the values of N in Table 3). For example, an ACT score of 20 would have been a more desirable breakpoint, but only 13 students in the study had an ACT score of 20 or above. At the time of the study, 17.6 was the national average for ACT score in mathematics.[10]

TABLE 3
MEAN SCORES BY ACT GROUP
ON THE FOUR PRACTICE PROBLEMS
IN BASIC EDITORIAL MECHANICS

Variable	N	Practice Problem			
		1	2	3	4
ACT Group 14	40	43.9	36.7	35.9	26.8
ACT Group 15	27	45.2	38.5	37.9	32.0
All Subjects	67	44.4	37.4	36.7	28.9

While ACT Group 15 scored higher on all four of the problems, the difference in mean scores of the two groups was not significant at the .05 level. The mean scores of 43.9 and 45.2 on problem 1 (Table 3) indicate that most of the students in both ACT groups were able to solve the problem of sizing three photographs to fit into a two-dimensional space, with no typefitting to be done and no cropping of photographs. A perfect solution to any of the problems would be a score of 50. On the other hand, the mean scores of 26.8 and 32.0 on the last problem indicate a certain amount of difficulty with more complicated mechanical designs, regardless of the ACT score. The null hypothesis for testing for differences on the basis of ACT score in mathematics is as follows:

Ho 2: No significant difference exists in the mean scores of students with ACT scores of 15 and above in mathematics after four practice trials in scale of reproduction and typefitting, and students with ACT scores of 14 and below in mathematics after four practice trials in scale of reproduction and typefitting.

TABLE 4

Analysis of Variance for Testing Differences in Editorial Mechanics by ACT Score

Source of Variation	df	Mean Square	F	Significance of F
Within Cells	65	237.91		
Constant	01	363790.58	1529.09	0.00
ACT Group	01	442.57	1.86	0.18

The F value of 1.86, in Table 4, was not significant at the .05 level. There was no significant difference in ability on the basis of ACT score in mathematics. Therefore, Hypothesis 2 was not rejected.

The relationship of mechanical complexity and individual performance can be observed in the data for "all subjects" in Table 3. The mean scores for all subjects were 44.4, 37.4, 36.7, and 28.9, respectively, on the problems. The scores seem to suggest that as difficulty increases--there was a corresponding decrease in skills. A perfect solution to any of the problems would be a score of 50. Thus, a mean score of 28.9 on the last problem would indicate some degree of difficulty with the kind of word problems used in this study to represent entry-level work situations.

The null hypothesis for ascertaining the significant effect of the treatment on all subjects as a group is as follows:

Ho 3: No significant difference exists in the mean scores of students after one practice trial in scale of repro-

duction and typefitting, and after four practice trials in scale of reproduction and typefitting.

The negative change in mean scores for all subjects (Table 3) was significant at the .05 level. The analysis of variance for testing for interaction is shown in Table 5. The F value of 23.21 for the variable "Subjects X Trials" was significant, as indicated by the .00 value of significance of F. The negative change was due to complexity of the problems and not merely the result of chance factors. Therefore, Hypothesis 3 was rejected.

TABLE 5
Test of Significance for Interaction of Trials
With Groups by Sex and ACT score and All Subjects

Source of Variation	df	Mean Square	F	Significance of F
Sex X Trials	03	294.33	2.61	0.052
Sex X ACT Group	03	52.09	0.45	0.719
Subjects X Trials	03	2700.90	23.21	0.00

The F value of 2.61 for the Source of Variation of Sex X Trials, in Table 5, would seem to indicate some degree of interaction of these variables. The Significance of F value of .052 approximates the .05 level of confidence, but would not be considered as statistically significant in this study.

SUMMARY AND CONCLUSIONS

The primary purpose of this study was to determine the effect of practice on individual performance in editorial mechanics. The study was designed to investigate the relative influence of mechanical "complexity" on the ability of students to perform the work of proportion and the basic arithmetic of typefitting.

The study was conducted in the Fall of 1985, in the Graphics Laboratory, Department of Mass Communications, Middle Tennessee State University, Murfreesboro, Tennessee. The subjects were 67 junior-level,

mass communications students who were enrolled in the course "MC 301 Introduction to Graphic Communications." They were divided into four groups--male, female, ACT score in mathematics of 14 and below, and ACT score in mathematics of 15 and above.

A series of four problems in basic editorial mechanics were assigned at various times throughout the semester. The problems were made progressively more difficult, in order to study the effect of mechanical complexity on individual performance. A repeated measures, analysis of variance was performed to ascertain any significant difference in the four groups, and to study the effect of complexity on performance.

Three hypotheses were formulated in null form for statistical testing at the .05 level of significance. The general research hypothesis of the study was that individual performance in basic editorial mechanics can be expected to improve with practice.

Whether or not the student was male or female made no difference in this study. While there was a decline in ability for both male and female groups--a negative change in mean scores on the series of four problems--there was no significant difference in the two groups. While the decrease in mean scores was greater for males than for females, 43.5 down to 24.4 for males, as compared to 45.0 down to 31.7 for females (Table 1), there was no significant difference in performance. Therefore, Hypothesis 1 was not rejected.

In this study, ACT scores in mathematics had no significant effect on performance. Students with an ACT score of 14 and below, showed more of a decline in mean scores, from 43.9 down to 26.8, as compared to 45.2 down to 32.0 for ACT Group 15 (Table 3). However, the difference was not significant. Therefore, Hypothesis 2 was not rejected.

Since 14.5 was the average ACT score for the 67 subjects in the study, 15 was selected as the breakpoint score for the two ACT groups. A replication of this study, or similar studies of teaching methods in graphic communications, should consider the use of more than two ACT groups. At the time of this study, the score of 17.6 was the national average for ACT score in mathematics. Studies should be made of groups with relatively good ACT scores in mathematics--say 20 and above--and groups with low ACT math scores. Admittedly, the arithmetic of scale of reproduction and typefitting are not overly complex, but it would be good to know how mathematical ability relates to career success in the field of graphic communications. At any rate, as the national ACT score in mathematics, the score of 17.6 could stand some improvement.

One of the major reasons for this study was to investigate the matter of mechanical "complexity" inherent in teaching technical subject matter, such as graphic communications. A considerable amount of detail is characteristic of the graphic arts industry, and beginning practitioners must learn to prepare layouts and specifications for the production process. The series of problems used in this study were made increasingly more difficult to solve, with the fourth and last problem the equivalent of entry-level work in editorial mechanics. However, no additional instruction and practice time were allocated to the subject of editorial mechanics--no new lessons, no new practice problems, no new transparencies and no additional homework. Time is at a premium in a good graphics course, especially MC 301 at MTSU. The question becomes "how well do students perform basic editorial mechanics with minimum instruction and practice time?" In this study, and with these particular students, apparently not very well.

Without additional learning time, beginning students are likely to experience some difficulty with the kind of entry-level problems used in this study. The mean scores of 36.7 and 28.9 on the last two problems (Table 3) indicate more than usual difficulty, especially the score of 28.9 on problem 4, the problem that represented entry-level work in editorial mechanics. The decrease in mean scores on the series of problems was significant. Therefore, Hypothesis 3 was rejected.

The development of entry-level skills is a worthwhile objective for a course in graphic communications. As a conclusion to this study, it would seem that the "scope" of a course must be limited in order to allow time for learning basic techniques. Some of us are guilty of trying to cover too much material in our technical courses--and end up talking too much about our favorite subject--graphic communications.

Footnotes

1 Journalism Quarterly Supplement, Volume 61 Number 1, Spring 1984. A special supplement and cumulative index to volumes 51-60 of Journalism Quarterly from 1974-83.

2 Donald E. Hill, "The Effect of Instruction and Practice on Speed and Accuracy in Journalism Copy-Editing," unpublished Ed.D. Dissertation, University of Missouri, 1984.

3 Robert O. Wyatt and David P. Badger, "How Reviews Affect Interest in and Evaluation of Films," Journalism Quarterly, 61:874-878 (Winter 1984).

4 Sandra Ernst Moriarty, "Novelty vs. Practicality in Advertising Typography." Journalism Quarterly, 61:188-190 (Spring 1984).

5 Donald E. Hill, The Practice of Copyfitting, (Huntsville, Alabama: Graphic Arts & Journalism Publishing Company, 1972). out of print.

6 The "four-item" specification is an instructional development of the author, and has become standard practice in the teaching of entry-level layout.

7 Donald E. Hill, Graphic Communications Notebook, 3rd. edition (Murfreesboro, Tennessee: Graphic Arts & Journalism Publishing Company, 1983).

8 The course handouts are designated with "interaction" item numbers in the lower-left corner of the sheets. All other sheets come in the Graphic Communications Notebook.

9 The statistical computations were performed by the MTSU Computer Department, utilizing the SPSS-X Package, under license agreement with SPSS-X, Inc., Suite 3300, 444 North Michigan Avenue, Chicago, Illinois 60611.

10 A 10% sample (42,940 cases) of male and female high school students, as reported in 1984-85 by American College Testing Program, 2201 North Dodge Street, Iowa City, Iowa 52243.

Vita

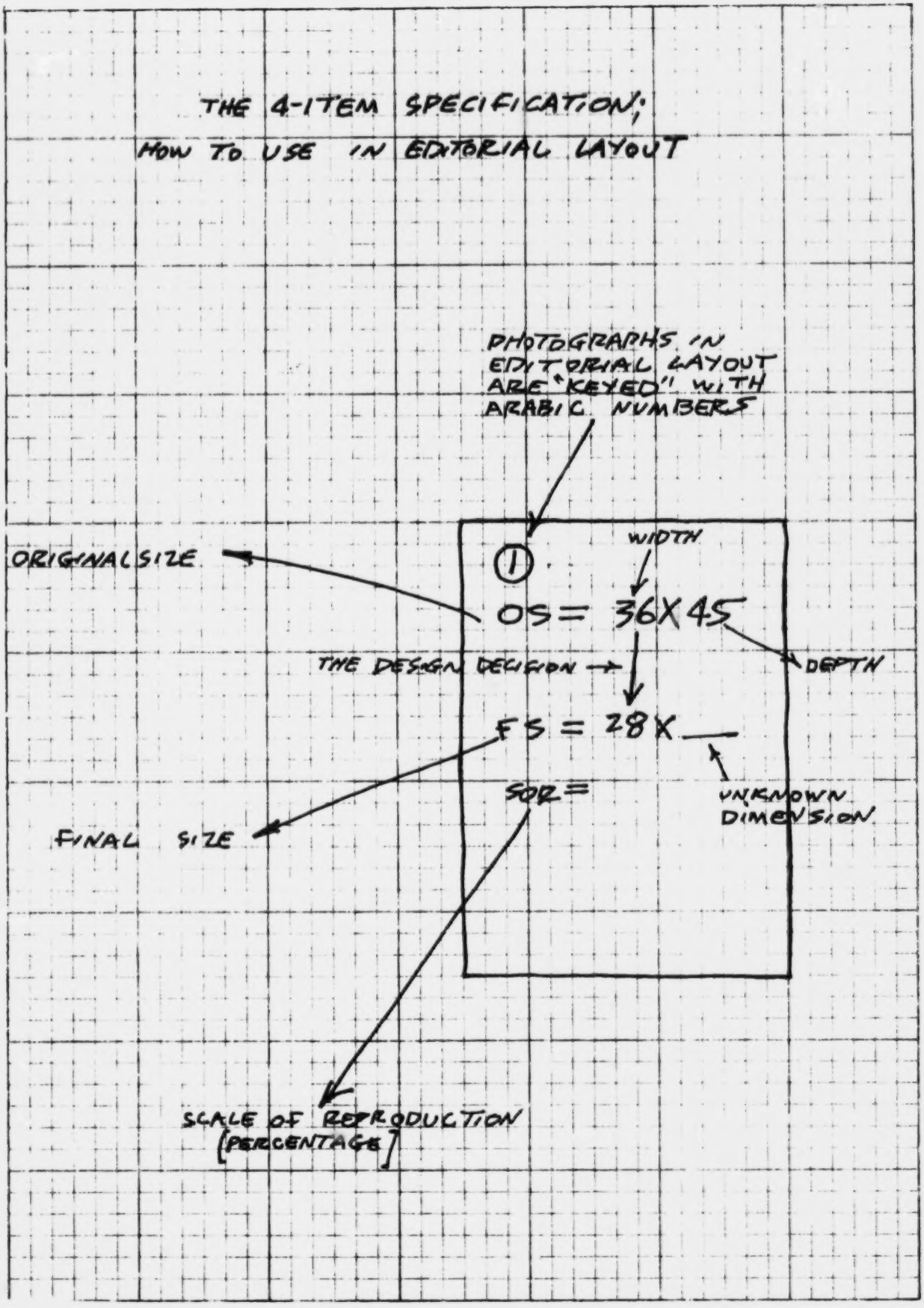
Donald E. Hill was born March 4, 1929 in Huntsville, Alabama. He attended Joe Bradley High School in the Merrimack Village and was graduated in May 1949. He was working as a welder on the automotive assembly line at the Dodge plant in Detroit, Michigan when the Korean War began in June, 1950. He returned home, joined the Army and served 13 months in Korea. For about eight years (1952-1960) Hill worked as an offset printer and photolithographer for a number of commercial printers in the Huntsville area. He returned to the University of Alabama and completed the B.S. degree in Industrial Management in May, 1961. After receiving the M.S. degree in Printing Management (1962) from South Dakota State University, Hill went back to Huntsville and worked for about a year as manager of printing and photography for the Chrysler Corporation. He joined the Peace Corps (1963) and worked for two years in Afghanistan--15 months as a reporter on the English language daily "The Kabul Times" and nine months as a consultant to The Royal Printing Office of Afghanistan. After an extensive tour of India, Southwest Asia, and Europe, Hill returned to the States (1965) and enrolled as a graduate student at the School of Journalism, University of Missouri. After seven years of teaching advertising graphics and studying journalism at Missouri, he moved to Murfreesboro, Tennessee (1972) to organize a program in graphic communications in the Department of Mass Communications, Middle Tennessee State University. Hill has written two books, a graphics laboratory notebook, and numerous magazine articles on printing technology. He is married to the former Joyce Marie McMeans and has been at Middle Tennessee State University since August 1972. In December, 1984, Donald E. Hill received the Doctor of Education degree in Technical Education from the University of Missouri.

Appendices

Appendix A

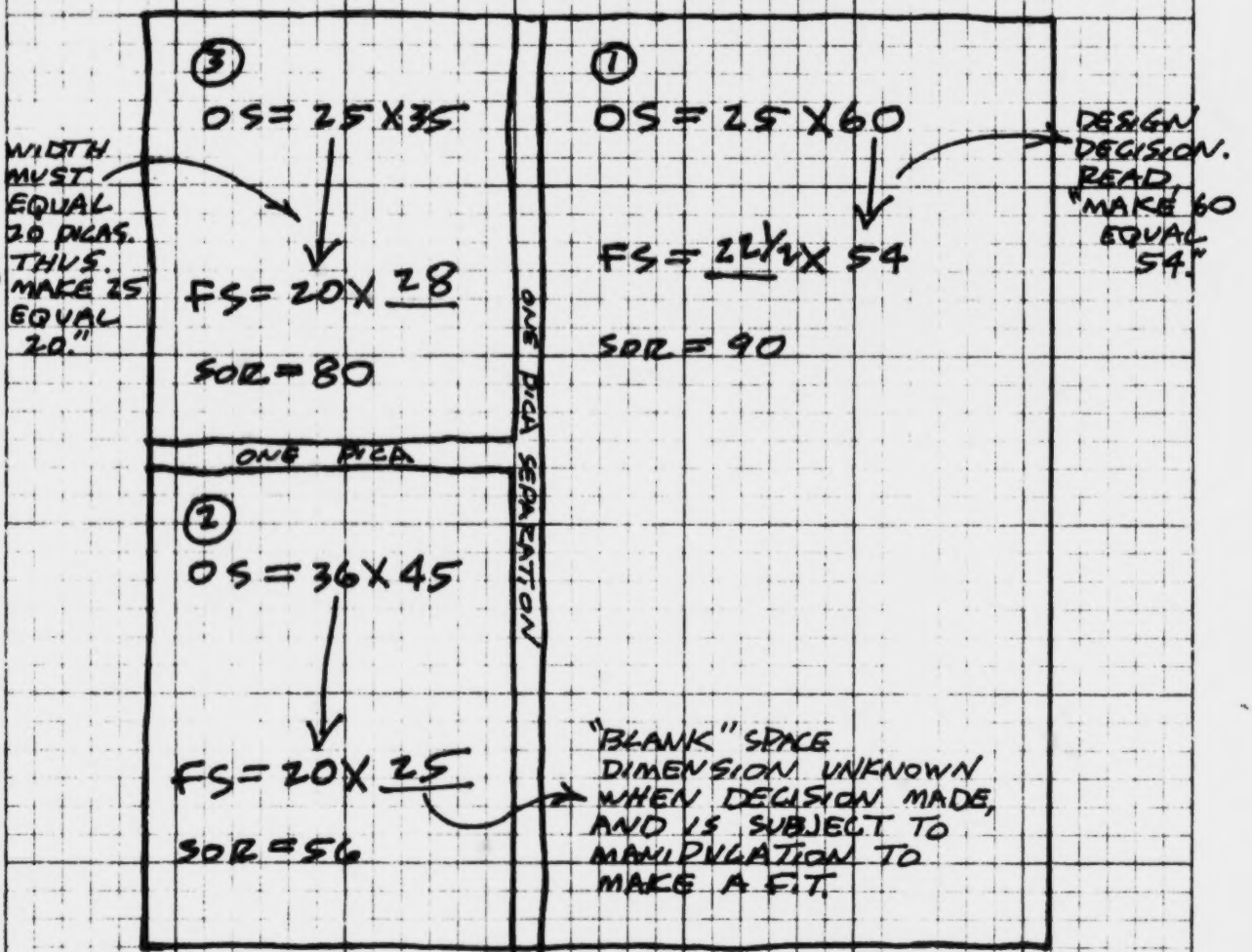
An example of how to use the four-item specification in layout, with three photographs to be sized to fit a predetermined space; with cropping permitted on one photograph.

THE 4-ITEM SPECIFICATION;
HOW TO USE IN EDITORIAL LAYOUT



SAMPLE LAYOUT ON HOW TO USE 4-ITEM SPECIFICATION IN LAYOUT

[AS TAUGHT IN MC 301, MIDDLE TENN. STATE U. AND ADVOCATED BY DONALD E. HILL]


③
OS = 25 X 35
WIDTH MUST EQUAL 20 PICAS. THUS, MAKE 25 EQUAL 20."
FS = 20 X 28
SOR = 80
ONE PICA
②
OS = 36 X 45
FS = 20 X 25
SOR = 56
ONE PICA SEPARATION
①
OS = 25 X 60
DESIGN DECISION. READ "MAKE 60 EQUAL 54."
FS = 22½ X 54
SOR = 90
"BLANK" SPACE DIMENSION UNKNOWN WHEN DECISION MADE, AND IS SUBJECT TO MANIPULATION TO MAKE A F.T.

NOTES:

① SPACE SIZE = 43½ X 54 PICAS

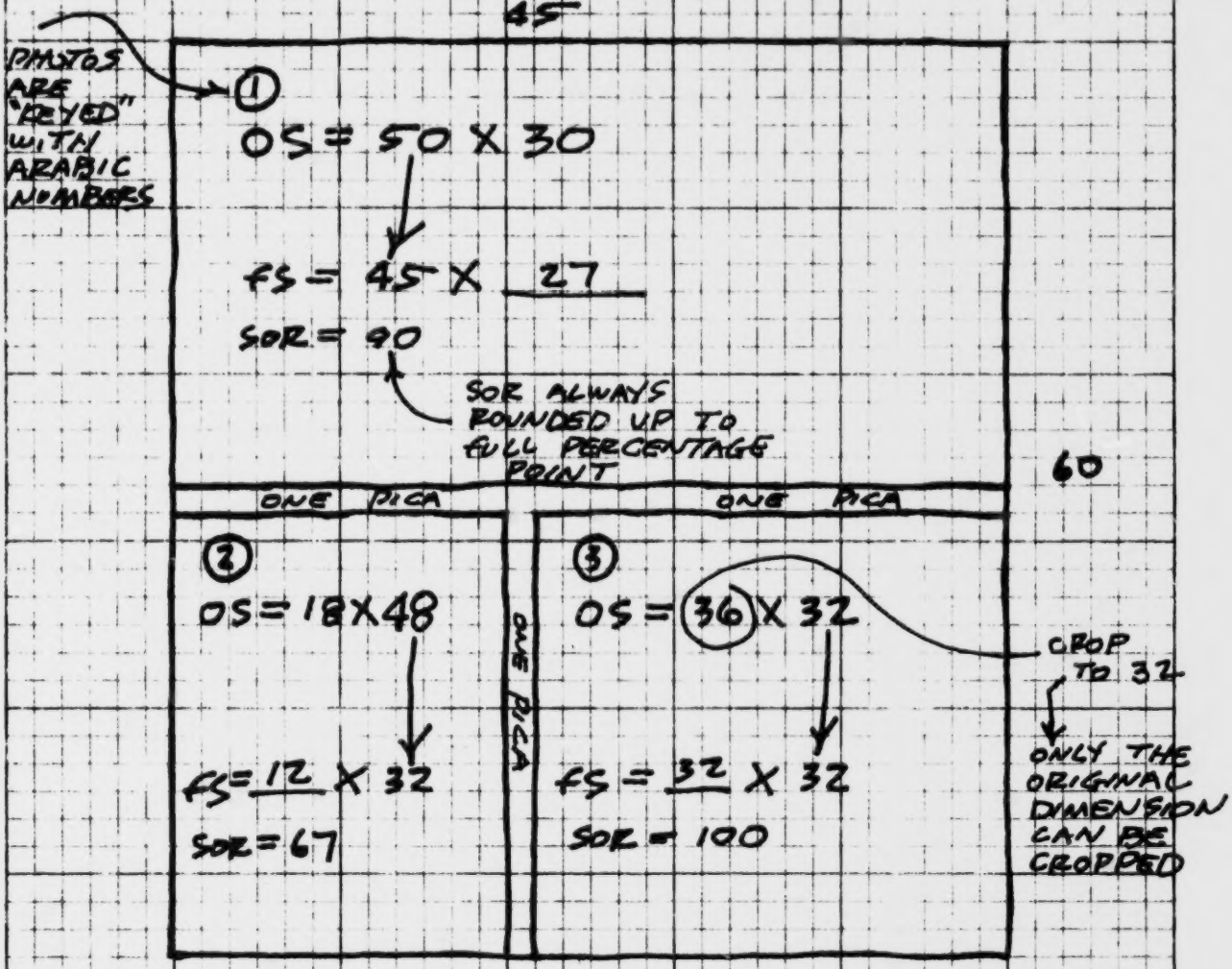
② "ARROW" REPRESENTS DESIGN DECISION

③ "BLANK" SPACE DIMENSION IS UNKNOWN AND NOTED WHEN DESIGN DECISION MADE AS SHOWN BY ARROWS.

④ "BLANK" SPACE DIMENSION MAY OR MAY NOT WORK AND IS TENTATIVE AND SUBJECT TO CHANGE

DEH 8-78

SAMPLE LAYOUT OF SOR PROBLEM WITH 4-ITEM SPECIFICATION SHOWING PROCEDURE TO INDICATE "CROPPING"



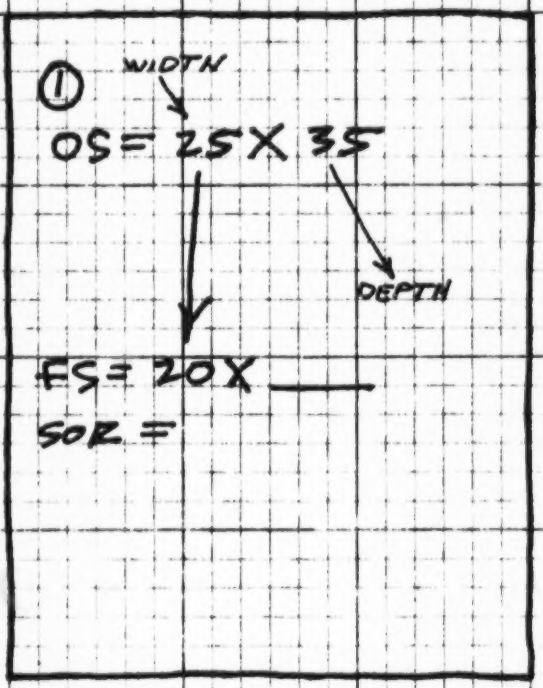
NOTES:

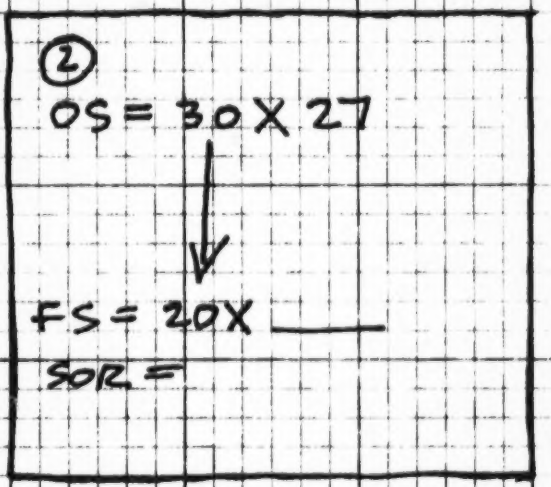
(1) OS = ORIGINAL SIZE IN PICAS
FS = FINAL SIZE, OR REPRODUCTION SIZE
SOR = SCALE OF REPRODUCTION [PERCENTAGE]

(2) SIZES IN THESE PROBLEMS ARE FOR INSTRUCTIONAL PURPOSES AND MAY NOT APPEAR REALISTIC IN THE WORLD OF WORK.

Donald E. Hill

SAMPLE PROBLEM OF LAYOUT IN WHICH TWO PHOTOS ARE SCALED TO EQUAL WIDTH, WHAT DEPTH REQUIRED?





NOTES:

① THE SOR WORK TO BE DONE CAN BE SEEN WITH SET-UP OF 4-ITEM SPECIFICATIONS AND "MAKE" ARROWS.

② 4-ITEM SPECIFICATION SET-UP (LAYOUT) INDICATES STUDENT UNDERSTANDS THE PROBLEM —— SOR IS MORE THAN PERCENTAGE RATIOS BETWEEN SIZES.

③ SEE APPENDIX D FOR DETAILS ON LAYOUTS WITH 4-ITEM SPECIFICATIONS

Appendix B

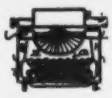
Course syllabus for MC 301
"Introduction to Graphic Communications"
Depart of Mass Communications
MTSU

BEST COPY AVAILABLE

Course of Study:

Syllabus and general information

Course MC 301 Introduction to Graphic Communications



Written and designed by Donald E. Hill

Course Syllabus

and guidelines for use of graphic communications notebook

This notebook is designed for use in the technical course *MC 301 Introduction to Graphic Communications*, in the Department of Mass Communications at Middle Tennessee State University in Murfreesboro, Tennessee 37132. The sheets in *The Graphic Communications Notebook* are arranged in the approximate order of presentation, and that order is based on the units of instruction that are outlined below for the course. Each sheet represents a particular lesson in basic graphic communications subject matter. As indicated by the titles of the lessons, the first subject matter to be covered is the prerequisite information for more difficult, more complex assignments. Some of the lessons are informational and many are technical in nature and require performance. For a three-hour, junior-level course for communications students, a good graphics course of average difficulty will require 90 to 100 assignments. These should be assigned at a rate of six or seven each week over a 16-week semester. Each lesson will be assigned a number, a relative point value and a due date. Complete the data block at the bottom of the sheet and turn in the assignment in the appropriate section slot of the "assignment" box, which is located on the wall in the graphics laboratory. There will be a penalty of 25 percent of point value for a missed deadline. When assignments are graded and returned—keep them in order in the notebook binder. No grades are recorded on a weekly basis. The notebook represents the technical activities requirement for the course. It will be taken up at the end of the semester and evaluated by the instructor. As might be expected, neatness counts in graphics, and will be reflected in your weekly assignment grades. There are no sheets in this notebook for individual student performance. When performance is required, a "steps of procedure" will be provided the student, along with a technical lesson and a basic demonstration. Some time will be allowed for a reasonable amount of practice, and then individual performance will be necessary for a grade. Do not expect perfect scores on performance tests. A large number of handouts will be distributed in class. If you are not present—your copies will be left in the "throw" box, which is located in the classroom. Do not ask the instructor for handouts. It is the responsibility of the student to get organized for the course.

Units of Instruction for the Course MC 301

Basic typography: The printer's point system; how to measure type and write 8-item type specifications; how to identify type styles; the identification and classification of twenty contemporary typefaces; the mechanics of typefitting with formulas, and how to find point-size lines in pica depth; the complete mechanics of copyfitting, including the measurement of copy and cast-off techniques; introduction to the video display terminal; film advance and body size with the ten-pica method; how to use type specimen books and other standard reference materials in basic typography.

Phototypography: Introduction to the principles and practices of phototypography; modular systems technology for phototypesetting; copy-editing on the video display terminal; how to write computer command codes for phototypesetting; standard and minus spacing in phototypography; quality aspects of typography; introduction to basic typographic design.

Photolithography: The basic principles and practices of photolithography; how to crop photographs and scale design elements for graphic arts photography; scale of reproduction; operation of the process camera for making line negatives, film positives and positive and reverse prints; factors in the selection and utilization of line art in graphic communications; the continuous-tone photograph; introduction to photo-mechanical halftone photography; introduction to special graphics, including duotones, colored tints, and process color reproduction; the relationship of the process of photolithography to basic communications design.

Method of instruction: This is not a lecture course. You can't learn graphics by listening to someone talk about the subject. There is no required textbook; no history, no letterpress, no busy-work, no matrix typography. A few selected readings will be assigned for descriptive analyses of state-of-the-art subjects—such as the video display terminal, how to make mechanical art, and console practice in systems phototypography. For this kind of learning, you need up-to-date reference materials, operation manuals, instructional procedures, specifications, and lots of practice. At the appropriate time, these special reference materials will be placed on reserve in the reference room 105 in the Graphics Laboratory. With each lesson, a technical discussion will be presented in the classroom setting. Take comprehensive notes. Record the names of the individual lessons, and date your notes. You must be able to coordinate classroom discussions with laboratory activities, inasmuch as there is a direct correlation between this work. Every lesson in MC 301 is a set of overhead transparancies—more than 900 specially made transparancies—diagrams, charts, steps of procedure, tables, how to work copyfitting problems, illustrations, summaries, problems in scale of reproduction—a visual experience in graphics instruction. In conjunction with these discussions, you can expect "inclass" practice activities on a weekly basis. You must be present to participate.

Attendance and participation: MC 301 meets three times weekly, in 50-minute classroom sessions, along with a 160-minute laboratory session. Attendance is required and will count toward the course letter grade. See the course requirements above for the relationship of attendance to letter grade. The student roll will be called at each meeting of class and laboratory. In 301, attendance is the main evidence of participation. If absent for any reason, you are responsible for the subject matter, demonstration procedures, and acquisition of handouts. Make your own arrangements to catch-up with the class. The only excused absences will be for personal illiness or a death in the immediate family, in which case you must provide documented proof of absence, and make immediate arrangements with the instructor to make-up work. Otherwise, late assignments are not acceptable, as the educational utility is decreased when the work is not accomplished in the prescribed order. MC 301 is a technical, laboratory course. You cannot "cram" to catch-up as you can in a book course. You are advised to go through the course with your section of the class. And it is further recommended that after three absences—the course should be dropped—as you run the risk of a failing letter grade.

Neatness and organization are invaluable work traits—both here and in the real world of visual symbols and the economic marketplace. In all assignments, whether written, oral or performance—neatness and organization will count 25 percent of relative point value. The best approach to the subject matter of 301 is to make a number of study guides each week that can be used to prepare for examinations and performance tests.

Syllabus of lessons: A complete and chronological listing of lessons from the preceding semester is available on disk storage in MVP system 1. The directory file code for the lesson syllabus is LSF3 (where LSF3 is the designation for Lesson Syllabus, Fall Semester 1983). Call up LSF3 and you can see and review a screen display of lessons in the order of presentation, along with the title of each lesson, point value, and due date information. For the upcoming semester, the lessons are subject to slight change in order and content—but the data in file LSF3 is an excellent review of the course. For more detailed information, ask the instructor to let you examine *The Graphic Communications Notebook* from the "last" semester.

Summary Caution: Do your own work. There will be opportunities to get help from your peers, to compare answers, and to plagiarize the work of others. The weekly, "inclass" assignments will indicate whether or not you are getting too much help from other members of the class. If you cannot do the work—then you must make more time available for the course.

DEH/1983

Basic graphic design: The principles of two-dimensional design; categories of design; planning for communications design, including how to make a rough layout and a comprehensive layout; the elements of advertising design and layout; how to make mechanical art; introduction to copywriting for graphic communications, including cast-off techniques for good line breaks in display type; classifications of designs, and how to make a design analysis; how to utilize and write specifications for mechanical and contact tints in graphic communications; selection of format shape and size.

Graphic communications technology: Introduction to printing processes, with emphasis on offset lithography; technical demonstrations of imposition and flat layout, platemaking, and presswork; production planning in graphic communications, including how to write specifications for color; a student project in design and production from original idea to final print.

General Information About Graphics Course MC 301

Course requirements: In determination of letter grades, the relative importance of course requirements is based on point values. This essentially is an objective evaluation of student activities, with a balance on individual performance and the acquisition of technical knowledge. In MC 301, there are four course requirements, shown here with point values and an arithmetical example of how to compute a letter grade for the course.

REQUIREMENTS	POINT VALUE
(1) laboratory activities	100
(2) midterm examination	100
(3) final examination	100
(4) attendance	15
total	315

A grade of "A" requires a total score of 90 percent of 315, or 284 points; for a "B" grade, 80 percent of 315, or 252 points; for a "C" grade, 70 percent of 315, or 221 points; and for the "D" grade, 60 percent of 315, or 189 points. A score of 188 or less is a failing grade in MC 301. Check the *Schedule of Classes* for the last day to drop a course and receive a WP grade. An "incomplete" grade will not be given in 301, except for personal illiness. Point credit for attendance is prorated on the basis of the number of absences, with three absences considered to be the maximum amount of time a student may be away from the course and still have a reasonable chance to make a C grade. For example, one or less absences earns 15 points; two absences earns 10 points; three absence earns 5 points; and no points for four or more absences. An *interaction item* on attendance policy and course requirements will be provided to each student.

Course prerequisites: Typing is a prerequisite for MC 301. If you have not completed MC 171, then you are out of the prerequisite scheme; go back to your adviser and try to get organized for junior-level, technical work. If a 301 assignment reqaires a written response from the student—it must be neatly and orderly "typewritten" in a prescribed manner known in graphics as a "descriptive analysis." You will be given an example of how to prepare an acceptable descriptive analysis, and the entire procedure for submitting outside homework assignments will be fully explained by the instructor. The descriptive analysis is primarily a study guide, a one-page outline on an assigned subject. It is not merely a read/write exercise for a grade. In every case, the descriptive analysis will involve equipment and operational procedure, and hands-on examination of exhibits. Merely reading and writing about these subjects is usually a waste of time.

Addendum

Additional information for course MC 301

Introduction: A complete course syllabus for MC 301 is provided as front sheets in the laboratory notebook. Read the syllabus carefully. The instructor will introduce the various units of instruction and explain the requirements for a letter grade. If you have any questions, please ask. This addendum sheet provides additional information, as well as spaces in which to record examination and other important dates that have been set in the schedule for the semester (fill-in the following data).

this is SECTION number:

Section call number:

Date of midterm examination:

Last day to drop with WP grade:

Date of Spring break:

Date of final examination:

Any other holidays?:

From the instructor: The word is out that *MC 301 Introduction to Graphic Communications* is one of the most rigorous, technical courses in the Department of Mass Communications. The best advise that can be offered is to maintain (1) good attendance, (2) take comprehensive notes, (3) keep-up with the laboratory work and (4) strive for a positive attitude about graphic communications. We are available and quite willing to help you in the work to successfully complete the graphics course.

Name of instructor:

Office location / Office hours:

Telephone:

Yellow handouts: A set of yellow-colored handout sheets has been designed and produced to provide the student with practice problems, graphic and typographical samples, and other information for use in the course. Generally distributed one-at-a-time to coincide with course-work, the so-called yellow sheets will allow you to work with the instructor on a one-to-one basis. In this way, the instructor can help you work through the problems and find design solutions and not be made to feel like "I'm doing this guys laboratory work." Come on! If you need assistance, bring on the "yellow" sheet and lets work out a solution.

How to compute laboratory grade: The technical activities grade is based on the accumulation of points on weekly homework assignments and various activities in the graphics laboratory. The notebook sheets, as well as all handouts, are given relative values from ten points to 100 points. Your grade will depend on the total points you have accumulated during the semester. It is computed as a percentage of total possible points for all assignments. As an example, the instructor will work-through and show the computations for a technical activities grade. Record this information in the margins.

Attendance

RULES OF ATTENDANCE FOR COURSE MC 301 AND EXPLANATION OF COURSE REQUIREMENTS

Attendance is required in MC 301, and will count five percent of final course letter grade. There are two acceptable excuses for absence in 301, (1) personal illness and (2) a death in the immediate family. In any case, some form of written documentation must be submitted to the course instructor immediately upon return to class. The instructor has sole responsibility for granting an excuse for absence in MC 301.

Any student with more than three unexcused absences will be automatically dropped from the course. Without exception, the class roll will be called and checked at the beginning of each meeting of class and laboratory session. Class and laboratory will always begin at the scheduled time. Be prompt. If you arrive late, you must notify the instructor at the end of the period, otherwise you will be counted absent.

For the purpose of determining letter grades, attendance will account for five percent of total course value. In the computation of grades, the following table will be used to assign point value for class attendance (where total course point value = 315).

number absences	percentage value	points earned
none	5	15
1	5	15
2	3	10
3		5
4	none	0

The course requirements for MC 301 in the table below show the importance of attendance and its relationship to other requirements for a grade in 301. Note the point values and percentages of each requirement. The instructor will explain each item and demonstrate the computation of a course grade. Please sign on the line below when you fully understand the requirements, and the procedure for computing your final letter grade in 301. Are there any questions about attendance/requirements for the course?

301 COURSE REQUIREMENTS

REQUIREMENTS	POINT VALUE
(1) laboratory activities	100
(2) midterm examination	100
(3) final examination	100
(4) attendance	15
total	315

student signature .....

student name & number	section	NO.	deadline information			grade
			DUE	RECEIVED	LATE	value ___

interaction item number 293

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301 course requirements

and general course information

TAKE NOTES ON THIS LESSON!

Units of Instruction

(1) Basic Typography
(2) Phototypography
(3) Photolithography
(4) Basic Graphic Design
(5) Graphic Communications Technology

Course Requirements

(1) Laboratory Activities	100 points	285
(2) Midterm Examination	100 points	281
(3) Final Examination	100 points	273
(4) Attendance	15 points	260
total course points	315 points	255
		253
		240
		231
		223
		221
		217
		200
		190
		189
		188
		187
		186

Letter Grades

A — 284 points
B — 252 points
C — 221 points
D — 189 points
F — 188 or less
(explain 188-point rule)

Are there any questions about course MC 301?

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Stores for Resale in the Graphic Communications Sequence

In the Graphic Communications Sequence, the student is financially responsible for the cost of materials and supplies that are used in laboratory assignments. In the course MC 301, this will include such items as orthochromatic film and paper, photo-mechanical typesetting paper, and processing solution for darkroom work. There is no fee for the use of the Graphics Laboratory. The accounting method for the acquisition, inventory, and sale of materials and supplies to students is called the *Stores For Resale Account.* This is a special University account that enables an instructor to purchase special materials for student use. The Department of Mass Communications has no financial interest in the Stores For Resale Account.

At the end of the semester, usually during the last week of classes and prior to final examinations, every student enrolled in a Graphics course will fill-out a Stores For Resale Bill and turn it in to the course instructor. **All Stores For Resale Bills are to be submitted to the course instructor.** The bills will be checked and submitted to the University Business Office. Students may pay the account at the Cashier's window, in the Cope Administration Building. A receipt will be provided upon payment. Some key points of interest in the Stores For Resale agreement are: (1) The bill for last semester for MC 301 was $ for each student. (2) For those who drop out of the course, the amount due will be prorated on the amount for last semester. If you take the midterm examination and then drop the course, your cost will be 50 percent of the amount in (1) above. (3) It is the policy of the University not to mail final report card grades if a student has an outstanding (unpaid) account. (4) Your signature in the space below is evidence that you understand and accept the Stores For Resale agreement. (5) The instructor has the right, according to University regulations, to require payment of the stores account before admittance to the final examination in the course. (6) You will be charged only the actual cost of materials. There is no markup of prices. Every effort will be made to reduce costs. Please do not waste materials.

Signature of Student .....

student name & number	section	NO.	deadline information			grade
			DUE	RECEIVED	LATE	value /

interaction item number 162

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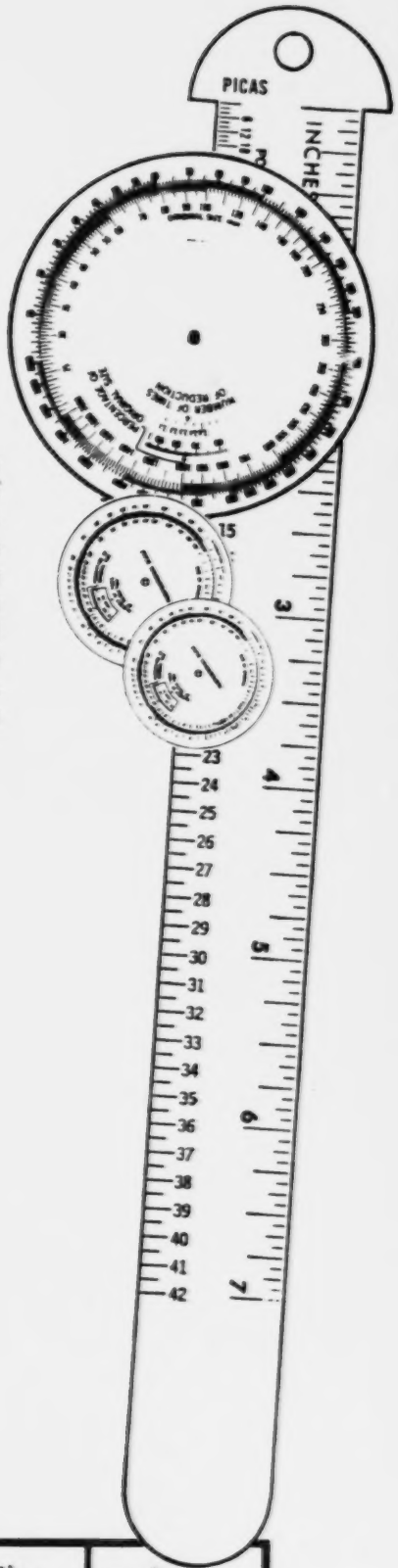
Appendix C

Samples of the four problems in editorial mechanics used in the experiment, with answers in the form of layouts and including four-item specifications

SOR

SOR IN THE REAL WORLD OF GRAPHIC DESIGN



Assume the role of an entry-level graphic designer for Graphic Arts & journalism Publishing Company, a firm that specializes in the production of books and magazines for the photography industry. You have been assigned the task of making a layout for a single-page, picture spread. The page size is 8½ X 11 inches, and there are three photographs (see photo sizes below). Your job is to fill the page with the three photographs, but leave a three-pica margin of white space on all four sides of the page. Internal separation is set at one pica. (A) Make a layout (not to scale) of this one-page design, and (B) show full specifications and placement of photographs. NOTE: If you do a good job—there is a chance of promotion to assistant production manager. If you fail—you probably will be fired!

ILLUSTRATION SIZES:

set # 21

(1) OS = 25 X 35 picas

(2) OS = 31 X 48

(3) OS = 32 X 80

student name & number	section	NO.	deadline information			grade
			DUE	RECEIVED	LATE	
MC 301	ALL	75	11-8			value 50

interaction item number 155

trial one

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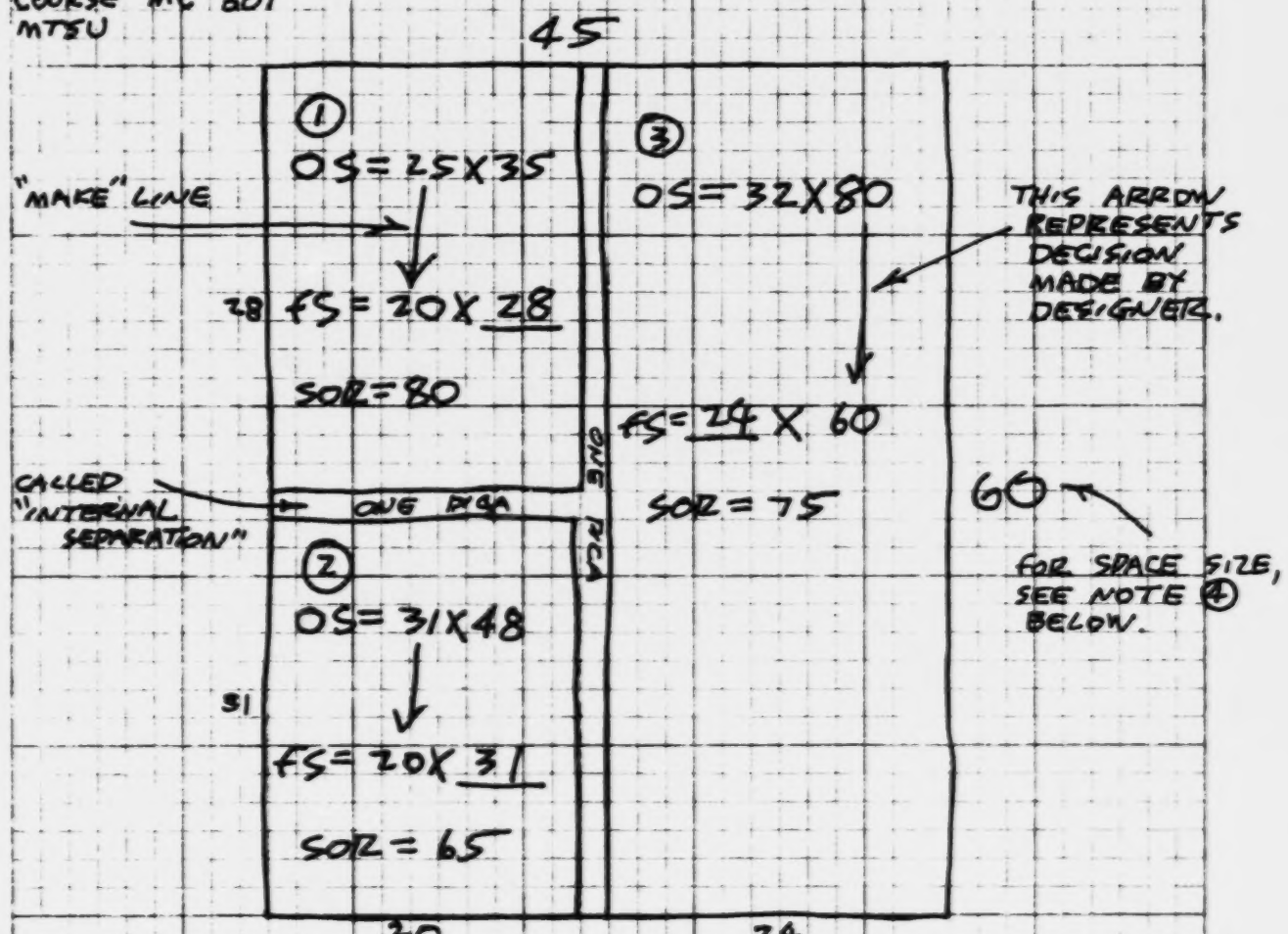
SOLUTION TO "TRIAL 1" ASSIGNMENT 75

FALL, 1985

COURSE MC 301
MTSU



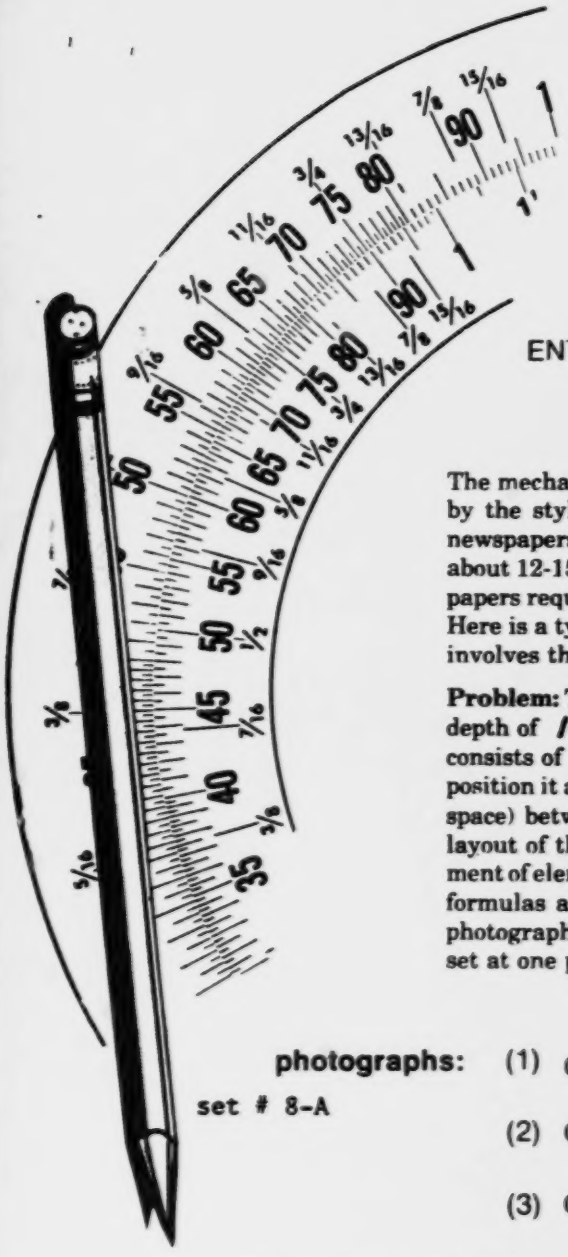
NOTES:

① DIMENSIONS ARE IN PICAS [AVOID FRACTIONS]

② SOR IS "ROUNDED" UP TO WHOLE % POINT

③ MUST HAVE EXACT FIT OR "NO" GO EXPLAIN

④ 8½ X 11" PAGE SIZE = 51 X 66 PICAS: WITH 3-PICA MARGINS, SPACE SIZE = 45 X 60 PICAS.



Scale of Reproduction

ENTRY-LEVEL MECHANICS FOR EDITORIAL DESIGN

The mechanics of two-dimensional, graphic design are often complicated by the stylistic requirements of various publications. For example, in newspapers, the elements must fit into standard column widths, usually about 12-15 picas. With deep columns of 15-20 inches, the design of newspapers requires entry-level skills in typefitting and scale of reproduction. Here is a typical problem in so-called editorial design, in which the work involves the integration of text type and photographs.

Problem: Three photographs (sizes below) and a copyblock are to fit into a depth of 17 inches. The column width is 15 picas. The copyblock consists of 32 lines of 9/9 type. Label the type *copyblock (A)*, and position it at the bottom of the column, with two picas of separation (white space) between the copyblock and the photograph above it. (1) Draw a layout of this design, including complete specifications and exact placement of elements. (2) Show the cropping that would be necessary, as well as formulas and computations for typefitting. Crop only one dimension of photograph number 3 and internal separation for the photographs is set at one pica.

photographs: (1) OS = 20 X 40 picas

set # 8-A

(2) OS = 19 X 24

(3) OS = 21 X 40

HINT: Crop only one dimension on photograph # 3

student name & number	section	NO.	deadline information			grade
			DUE	RECEIVED	LATE	
MC 301	ALL	90	11-22			value 50

interaction item number 219

trial two

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SOLUTION TO TRIAL "TWO," ASSIGNMENT # 90

FALL, 1985
COURSE MC 301
MTSU

15

① OS= 20 X 40

FS= 15 X 30

SOR = 75

30

ONE PICA

② OS= 19 X 24

FS= 15 X 19

SOR = 79

19

ONE PICA

③ OS= 21 X 40

FS= 15 X 25

SOR = 72

25

TWO PICAS

COPY BLOCK (A)

32 LAVES 9/6 TYPE

DEPTH = 24 PICAS

24

DEPTH

15

CALLED THE "MAKE" LINE; SEE APPENDIX D FOR DETAILS ON THE PROCEDURE.

NOTE: TOTAL DEPTH MUST EQUAL 17 INCHES

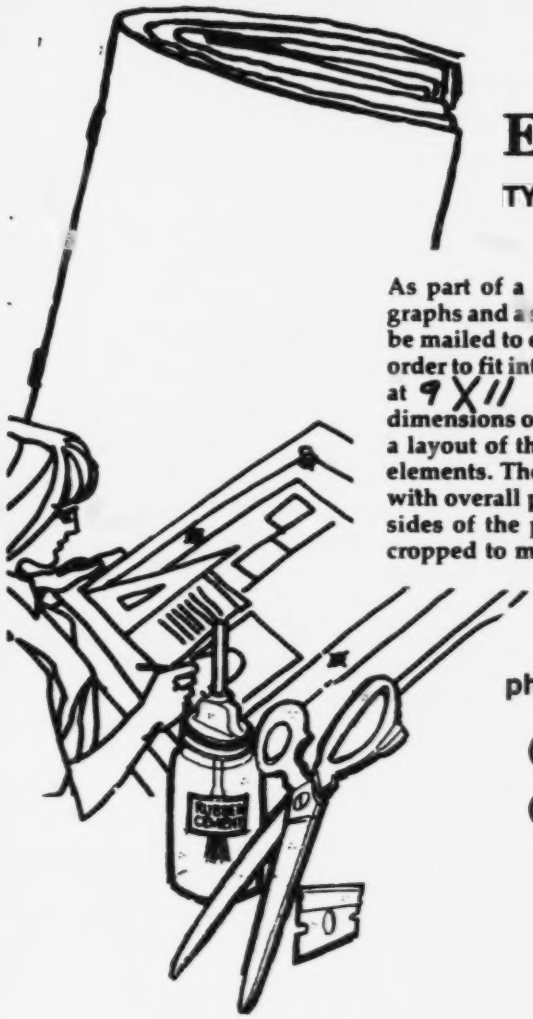
30
19
25
24
4
6 | 102 = 17 INCHES

CROP DEPTH TO 35 PICAS

DO NOT SUGGEST TO CROP 5 PICAS FROM DEPTH: USE CROPPING "STYLE".

STUDENTS MUST BE ABLE TO PERFORM BASIC "TYPEFITTING" TO WORK PROBLEM.

DEM



Editorial Design

TYPEFITTING AND SOR MECHANICS IN DESIGN

As part of a public relations, direct-to-consumer mail campaign, two photographs and a small copyblock are to be placed on one page of a brochure that will be mailed to every gasoline service station in the Southeastern United States. In order to fit into a standard, number 12, kraft envelope, the page size has been set at 9 X 11 inches. A description of the type for the copyblock and original dimensions of the photographs are listed below. (A) On a Pica Plan Sheet, make a layout of the page; show exact positions and complete specifications for the elements. The internal separation is set at one pica. (B) In order to be consistent with overall page design of the brochure, allow for margins of four picas on all sides of the page. (C) One dimension of photograph number TWO may be cropped to make a perfect fit.

set # 21A

photographs:

(1) OS = 28 X 60 picas

(2) OS = 20 X 45

copyblock:

28 lines of 9/9 type
justified on 18 picas

student name & number	section	NO.	deadline information			grade
			DUE	RECEIVED	LATE	
MC 301	ALL	98	12-6			value 50

interaction item number 134

trial three

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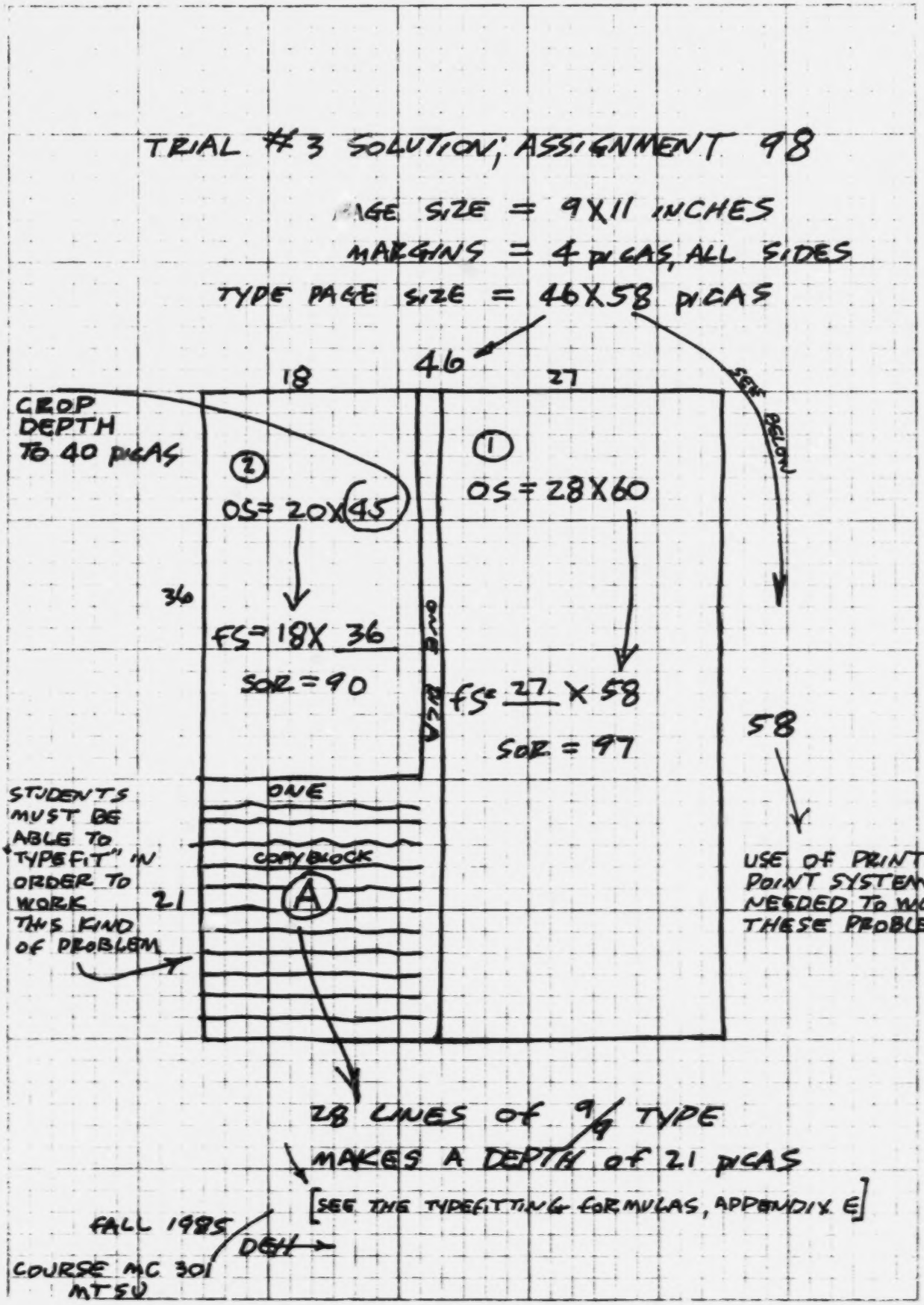
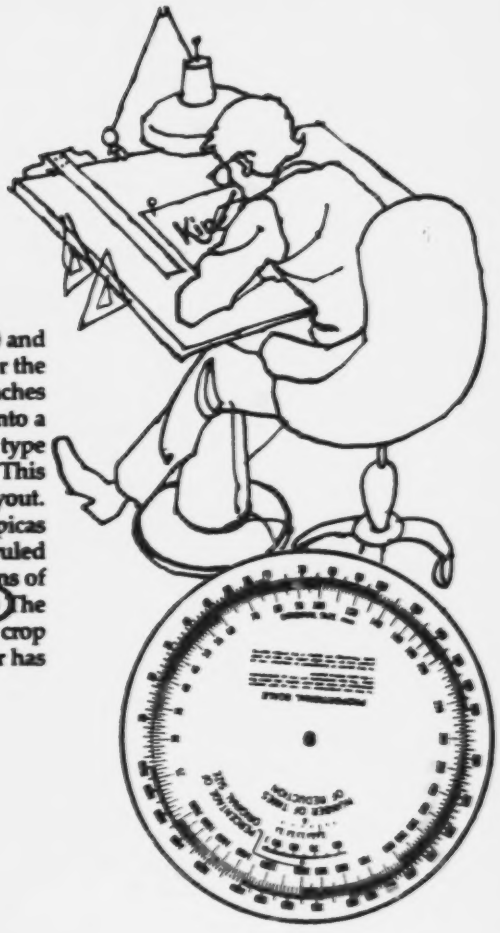

TRIAL #3 SOLUTION; ASSIGNMENT 98
PAGE SIZE = 9X11 INCHES
MARGINS = 4 PICAS, ALL SIDES
TYPE PAGE SIZE = 46X58 PICAS
46
18
27
SEE BELOW
CROP DEPTH TO 40 PICAS
2
OS = 20X45
1
OS = 28X60
36
FS = 18X 36
SOR = 90
ONE PICA
FS = 27 X 58
SOR = 97
58
USE OF PRINTERS POINT SYSTEM NEEDED TO WORK THESE PROBLEMS.
STUDENTS MUST BE ABLE TO "TYPEFIT" IN ORDER TO WORK THIS KIND OF PROBLEM
21
ONE
COPY BLOCK
A
28 LINES of 9/9 TYPE
MAKES A DEPTH of 21 PICAS
[SEE THE TYPEFITTING FORMULAS, APPENDIX E]
FALL 1985
COURSE MC 301
MTSU
DGH

Publications Design

SCALE OF REPRODUCTION AND TYPEFITTING MECHANICS IN MAGAZINE LAYOUT



A layout for a magazine double-spread will contain two photographs (sizes below) and a so-called combined cutline (description below) for the photographs. The title for the spread will be a single line of 84-point Albertus Bold; and the title will be 15 inches wide, in order to extend across the entire layout and unify the various elements into a single presentation. (A) The width of the two photographs, plus the width of the type for the cutline (plus internal separation) are to equal the pica width of the title. This arrangement will create good alignment of elements down the two sides of the layout. Position (horizontally) the two photographs and the combined cutline a few picas directly below the title, with the cutline between the two photographs. (B) On the ruled side of a pica plan sheet, make a layout that shows the placement and specifications of the photographs and cutline and the relationship of these elements to the title. (C) The combined cutline consists of 36 lines of 9/10 type on a 23 pica line. You may crop one dimension of photograph number 2 in order to make a fit. The art director has called for internal separation to be set at one pica.

PHOTOGRAPHS: (1) OS = 50 X 37½

set # 22

(2) OS = 38X 42

NOTES: (A) All three elements must be equal in pica depth

(B) Crop only the width of photograph number 2

(C) No other hints.

student name & number	section	NO.	deadline information			grade
			DUE	RECEIVED	LATE	
MC 301 FINAL EXAM	NA	NA	12-10			value 50

interaction item number 224 trial four

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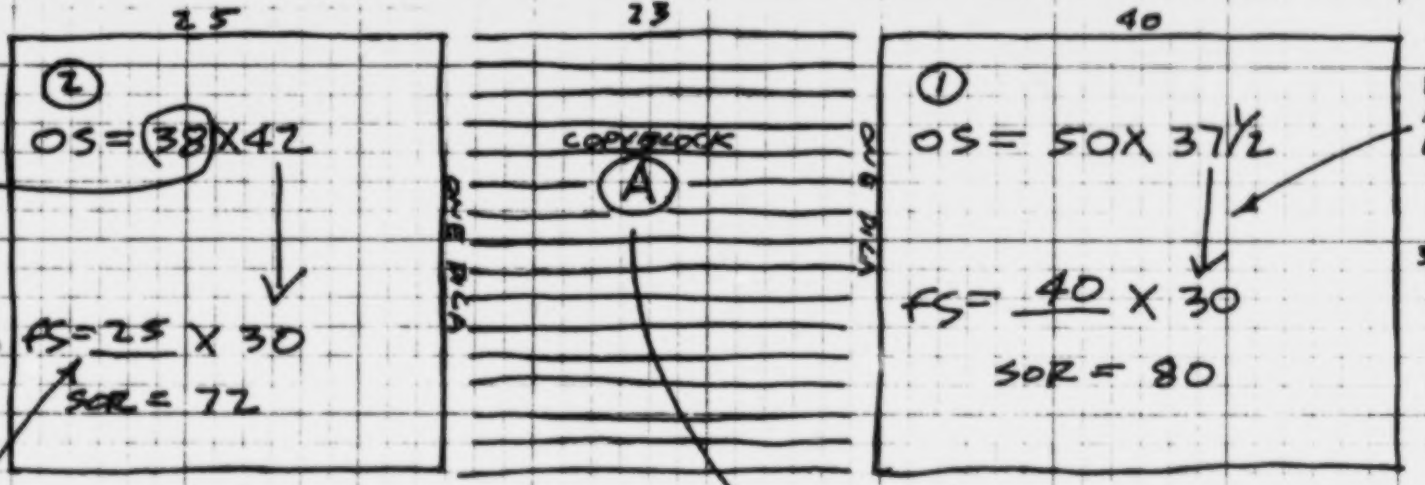
SOLUTION TO "TRIAL 4" ON THE FINAL EXAMINATION

FALL 1985

[25+1+23+1+40=90]

← TITLE IS 15 INCHES WIDE, OR 90 PICAS →



NOTES:

WIDTH MUST BE 25; THUS ORIGINAL SIZE MUST BE CROPED TO 35

36 LINES of 9/10 TYPE ON [23] MAKES A DEPTH = 30 pICAS

FIRST, FIND DEPTH OF THE TYPE, THEN, SIZE PHOTOS TO THAT DEPTH, AND CROP FOR FIT of WIDTH → [HERE, A SOLUTION WOULD INDICATE GOOD UNDERSTANDING OF MULTI-ELEMENT MECHANICAL PROBLEMS]

DEH
COURSE MC 301
MTSU

Appendix D

Random samples of various instructional materials
used in the basic graphics course MC 301
at Middle Tennessee State University,
and written, designed and produced by Donald E. Hill

4-ITEM SPECIFICATION

① OS = 38 X 51
SOR = ↓
FS = ? X 46

KEY NUMBER → ②
OS = 45 X 67
SOR = ↓
FS = 31 X ?

Where OS = original size
FS = final size

The scale of reproduction in design of graphic communications

One of the fundamental skills in graphic communications is "sizing" the elements. The most widely used two-dimensional elements are continuous-tone photographs and line illustrations. In most design situations, the various elements to be incorporated into a particular presentation will not be the correct size and must be reduced (or enlarged) to fit predetermined spaces in layout. The recommended procedure is to reduce elements when possible, since enlargement can influence quality of final reproduction.

In graphic design, the use of photographs and other illustrations, requires the calculation of a percentage ratio between the width/depth dimensions of the original element and its final production size. This ratio between an original size and a final size is known as *scale of reproduction* (SOR).

Definition of scale of reproduction: The percentage ratio between an original size and a final production size required to reduce or enlarge an element and make it fit a predetermined space in layout. Scale of reproduction is expressed as a whole number, and never in fractions. In addition, it is recommended that most elements be measured in PICAS, since pica units will tend to simply the calculation of SOR, and make it easier to fit elements into predetermined spaces. For example, an SOR of 80 would represent a reduction of 20 percent of original dimensions (both width and depth), while an SOR of 125 would indicate an enlargement of 25 percent. An SOR of 100 would express "same size"—where the final size printed on paper is the same as the original dimensions of the element. Note that both width and depth of an element are altered with SOR. The reduction of width by 20 percent also reduces depth by the same amount, and vice versa. In the production process, mechanical art is always photographed at an SOR of 100.

Scale of reproduction guidelines

(1) express SOR as whole number
(2) round up to full percentage point
(3) reduce elements only
(4) always specify SOR
(5) reduce elements to fit space

WIDTH → 36 X 48½ ← DEPTH

See the examples for the typical style of writing specifications for two dimensional elements, along with the 4-item specification recommended for work with SOR. The arrow in the examples indicates the controlling factor in the SOR problem, and the graphic designer must decide if the second dimension, when altered by SOR, would be workable for the particular design situation.

The scale of reproduction is important from two points of view. (1) Technically, an SOR must be provided for each item to be photographed on a process-type camera. If the camera technician must compute the SOR, the chance for error is increased and the item to be scaled may not fit the space on layout. (2) From the design point of view, SOR represents planning in advance of production. And since graphic design must be mechanically feasible — any economic activity that enhances the mechanics of production is considered good technique.

While SOR percentage ratios can be computed with an electronic calculator, the instrument most often used in SOR planning is the "proportional scale" (see back of sheet). At a given SOR, a proportional scale shows both width and depth dimensions of an original element, as well as the corresponding or final size dimensions. The laboratory assistant will work through some typical SOR problems to demonstrate how to use a proportional scale.

student name & number	section	NO.	deadline information			grade
			DUE	RECEIVED	LATE	value ___

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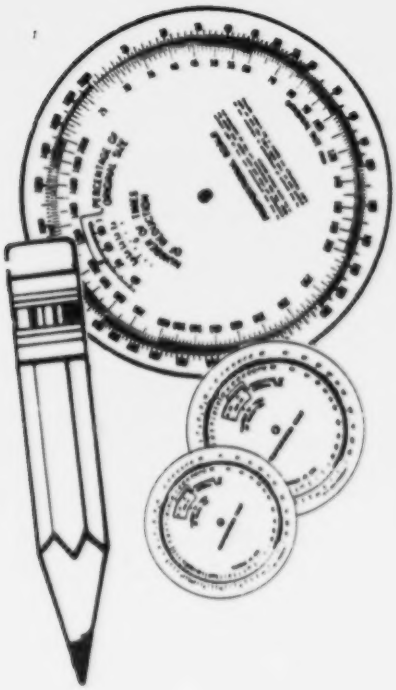


The Mechanics of Editorial Design

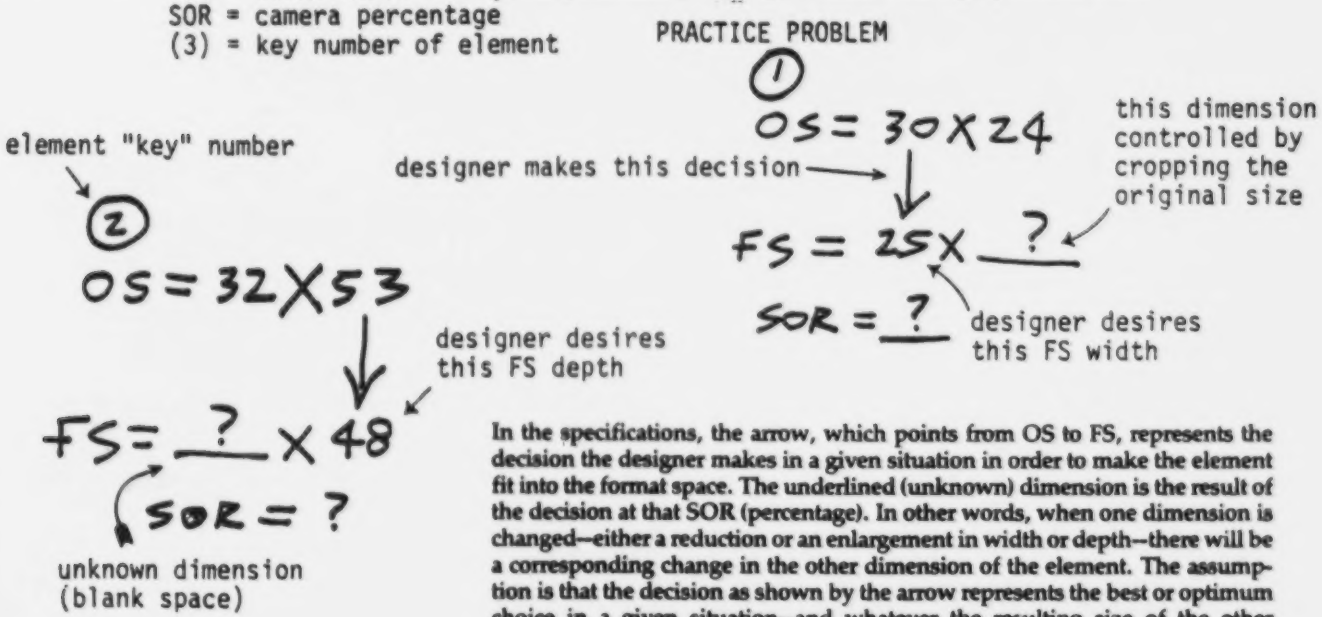
MECHANICS AND SPECIFICATIONS OF SCALE OF REPRODUCTION

There are many activities that may be considered a part of the general mechanics of editorial design. Since photographs and type are the main elements of design for the print media, it is imperative that entry-level practitioners learn how to manipulate them. The work of changing, altering and otherwise fitting photographs into predetermined spaces in layout is referred to in design work as "scale of reproduction."

Scale of reproduction (SOR) is more than percentage ratios between the dimensions of two-dimensional elements. In graphic communications, the typical rectangular element is a continuous-tone photograph. On the other hand, while artwork may be irregular in shape, the mechanics of SOR work are the same as with rectangular elements. The size of two-dimensional elements--whether photographs or artwork--is expressed in the form of a "four-item" specification, which is an arithmetical procedure that gives the (1) key number of the element, the (2) original size in picas, the (3) final reproduction size, and the (4) camera reproduction percentage that would be required to make a fit of elements in the particular design situation. Since "cropping" is generally the prerogative of the designer in the real world of graphic communications, the decisions on where and how much to crop to make a fit of elements are also shown in a four-item specification. See the various diagrams below for examples of how to use the four-item specification in layout. After which, it will become obvious that SOR is more than percentage relationships between dimensions of elements. It should be noted that most problems in SOR cannot be readily solved with a pocket calculator, but rather require an understanding of design mechanics--and good skills with a proportional scale.

WHERE: OS = original size
FS = final size
SOR = camera percentage
(3) = key number of element

PRACTICE PROBLEM


1
OS = 30 X 24
this dimension controlled by cropping the original size
designer makes this decision
FS = 25 X ?
SOR = ?
designer desires this FS width
element "key" number
2
OS = 32 X 53
designer desires this FS depth
FS = ? X 48
SOR = ?
unknown dimension (blank space)

In the specifications, the arrow, which points from OS to FS, represents the decision the designer makes in a given situation in order to make the element fit into the format space. The underlined (unknown) dimension is the result of the decision at that SOR (percentage). In other words, when one dimension is changed--either a reduction or an enlargement in width or depth--there will be a corresponding change in the other dimension of the element. The assumption is that the decision as shown by the arrow represents the best or optimum choice in a given situation--and whatever the resulting size of the other dimension (the size underlined) is acceptable to the designer. If not, then SOR must be changed to find a workable fit of elements. Note that cropping permits control over the underlined dimension by changing the original size.

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Introduction to the mechanics of typefitting

HOW TO FIND POINT-SIZE LINES OF TYPE IN PICA DEPTH

Typefitting is the first step in typographic design. It is not enough to be able to write specifications or to identify typefaces by name and style. In graphic communications, the primary message will be in the type. All the other elements are complements in support of the content of type elements. The entry-level designer must learn the mechanics of typefitting—learn how to manipulate the width and depth of reader composition and how to find point-size lines in pica depth of a space.

In the work of typefitting, with a given amount of copy to be set into machine type, the relationship of width to depth can be expressed as; (1) the wider the space, the less depth required for the composition, and (2) as width decreases, depth increases. From the typographical viewpoint, this width/depth relationship can be stated as; (1) the longer the line of machine-set type, the less depth will be required to accommodate the composition, and (2) when a type block requires additional depth for design purposes, decrease the line length. Note that line length of type and width of space must correspond when type is to be fitted into a two-dimensional space. The two basic formulas for typefitting are:

$$PD = TL \times BS \div 12$$

$$TL = PD \times 12 \div BS$$

where:

PD = pica depth of the space
TL = total lines in the pica depth
BS = body size, where BS = TS + L
12 = twelve points in one pica

While the work of typefitting relies on basic arithmetic, the student must understand the design problems, and not be misled by a false sense of accomplishment that can come from finding answers with a simple formula. For example, when is the answer "yes the type will fit" or "no the type will not fit" in a problem of point-size lines in a pica depth? Here is a typical typefitting situation, in which the problem is "which typeface will fit the pica depth?"

size of space = 25 X 50 picas

typefaces
① 9/10
② 8/9
③ 8/8

$TL = \frac{PD \times 12}{BS}$

$= \frac{50 \times 12}{9}$

$= 66.7$

TL is a fraction: type size will not fit the space depth

$TL = \frac{PD \times 12}{BS}$

$= \frac{50 \times 12}{10}$

$= 60$

TL is an exact number of full lines: this type size will fit the depth

When TL is in the form of a fraction, the typeface will not fit the pica depth. In order to fit, TL must be exact, an even number of full lines of type. Thus, when TL is a fraction, the answer is "no" the typeface will not fit into the space depth.

student name & number	section	NO.	deadline information			grade
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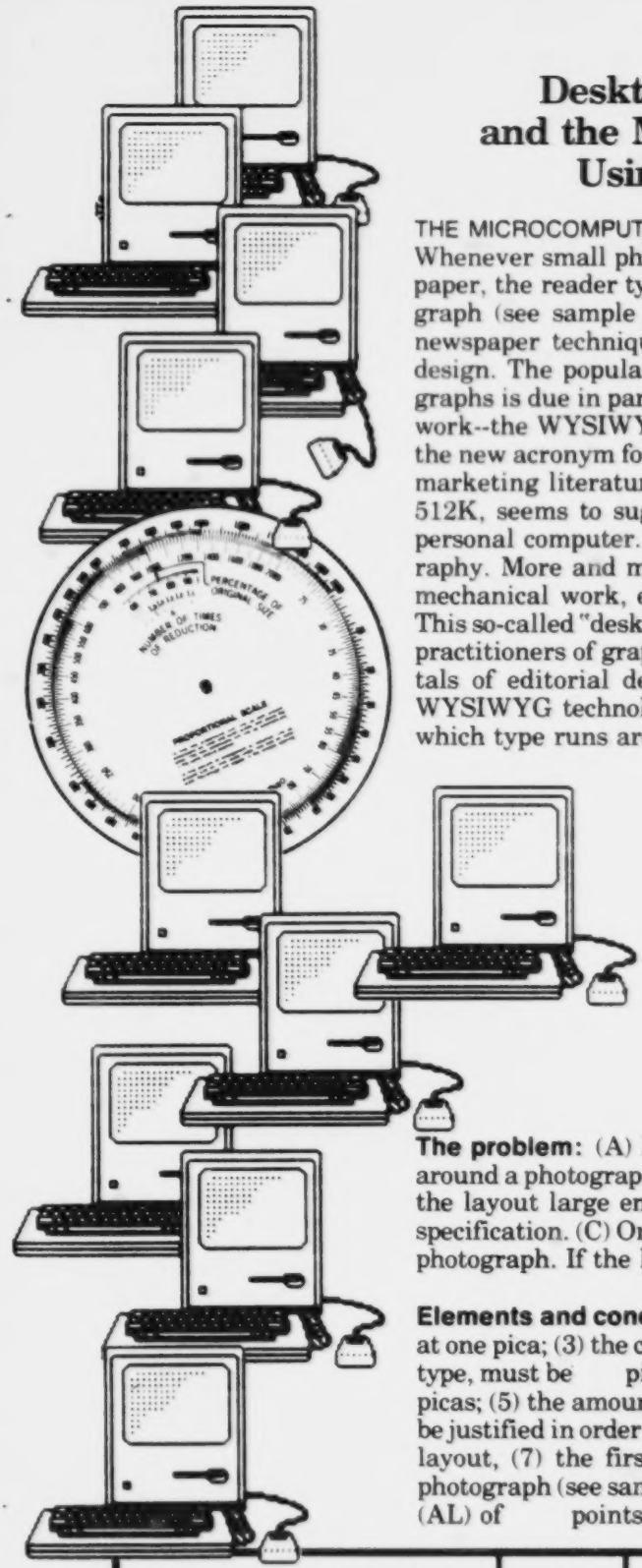
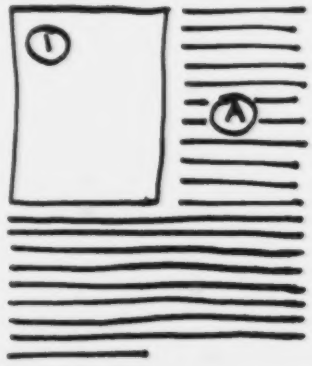


Desktop Publishing and the Mechanics of Editorial Design Using WYSIWYG Technology

THE MICROCOMPUTER IN EDITORIAL DESIGN AND PRODUCTION

Whenever small photographs are used within single columns of a newspaper, the reader type must run-around and down one side of the photograph (see sample layout). This run-around of column type is an old newspaper technique that is experiencing a comeback in publications design. The popularity of typographic elements in balance with photographs is due in part to the increased use of screen make-up in magazine work--the WYSIWYG approach to design and production (WYSIWYG is the new acronym for "what you see is what you get"). Some of the current marketing literature for microcomputers, such as the Apple Macintosh 512K, seems to suggest that the manipulation of type is easy with a personal computer. It may be, if you know anything about basic typography. More and more, small publishers are doing their own, inhouse, mechanical work, especially typesetting, on small, desktop computers. This so-called "desktop publishing" will create a great demand for student practitioners of graphic communications who understand the fundamentals of editorial design. Nevertheless, it will be a few years before WYSIWYG technology can solve the mechanics of typical problems in which type runs around a photograph.



The problem: (A) Make an entry-level layout that shows type running around a photograph, similar to the small, sample layout above. (B) Make the layout large enough to clearly show the "make" line in the 4-item specification. (C) On the layout, show the exact number of lines below the photograph. If the last line of type is a fraction of a line, then show it.

Elements and conditions: (1) No cropping; (2) internal separation is set at one pica; (3) the combined width of the layout, both the photograph and type, must be picas; (4) the final width of the photograph must be picas; (5) the amount of copy is set at characters; (6) the type must be justified in order to make even margins on the left and right sides of the layout, (7) the first line of type must align with the top edge of the photograph (see sample layout); (8) use type, with an alphabet length (AL) of points. (9) Show proof at every step—or forget it!

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interaction item number 263

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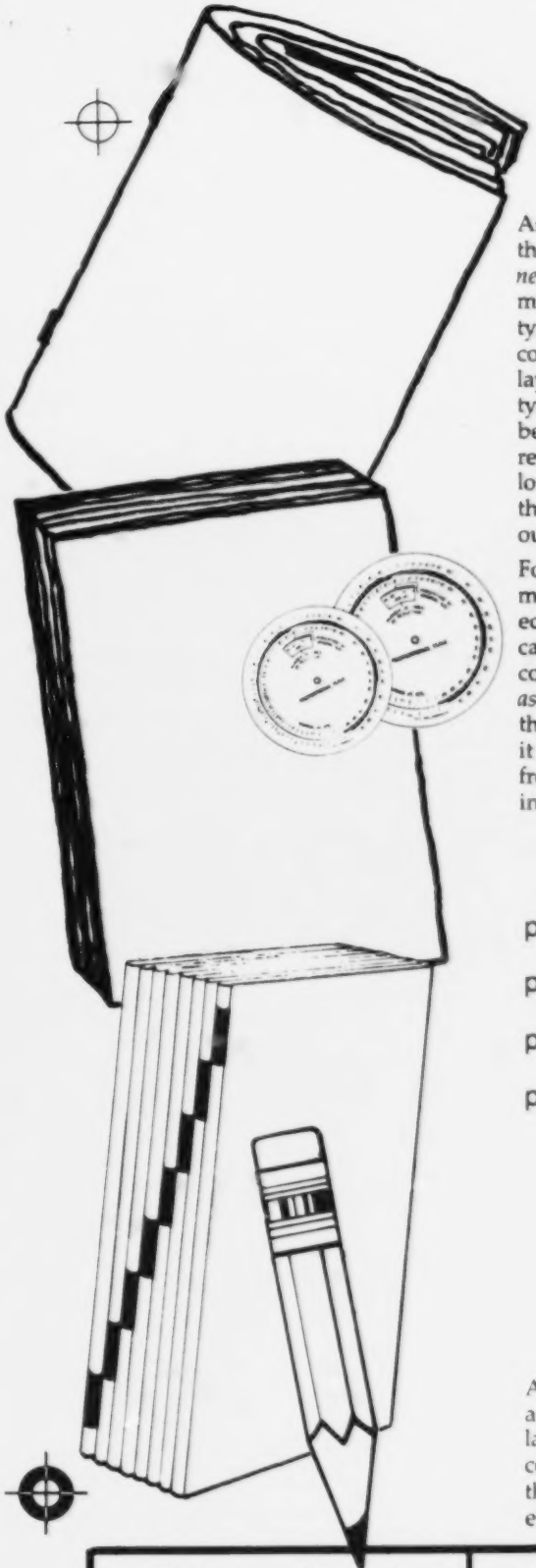

Dynamic techniques of magazine layout and design

LAYOUT PLANNING WITH SOR AND COPYFITTING

Assume the role of an editorial designer with a regional magazine with the title *Literature and Culture of Appalachian Mountain Peoples of Tennessee*. On this publication, the layout style is very "dynamic" and much different from the usual editorial layout in columns, which is the typical format for newspapers and newsmagazines. Format size is considered to be 17X11 inches, the so-called double-spread. Each layout is planned as a separate visual presentation. A good amount of typographical difference is utilized to create "separation" of content between articles in the publication. The standard use of headlines is replaced by what is known in the trade as "titles," which are much longer, stronger in content, and not necessarily positioned at the top of the format. Easy and well-directed visual movement among the various design elements is a major consideration in this type of layout.

For a forthcoming issue of the magazine, you have been assigned a major article for layout as a double-spread presentation. The managing editor has asked for something special and *dynamic*, and a mechanically perfect pattern of elements that will be appropriate for the unique content of the article. In the words of the editor, *make the layout as good as the content. Try something like this!* (The instructor will rough-out on the chalkboard the editor's suggested arrangement of elements. Copy it down in detail, since the first thing to be done here is to work it out from a mechanical point of view.) Here is a list of the elements for use in this layout (element data will be given orally, record it below):

manuscript =

photograph 1 OS size =

photograph 2 OS size =

photograph 3 OS size =

photograph 4 OS size =

internal separation =

type specifications =

After considerable planning with SOR and copyfitting, (A) can the arrangement of elements as suggested by the editor be used in this layout? (B) If YES, make a rough layout of the elements and give complete specifications and dimensions for all elements. (C) If NO, then explain what must be done in order to achieve a pattern of elements that would be similar to that suggested by the editor?

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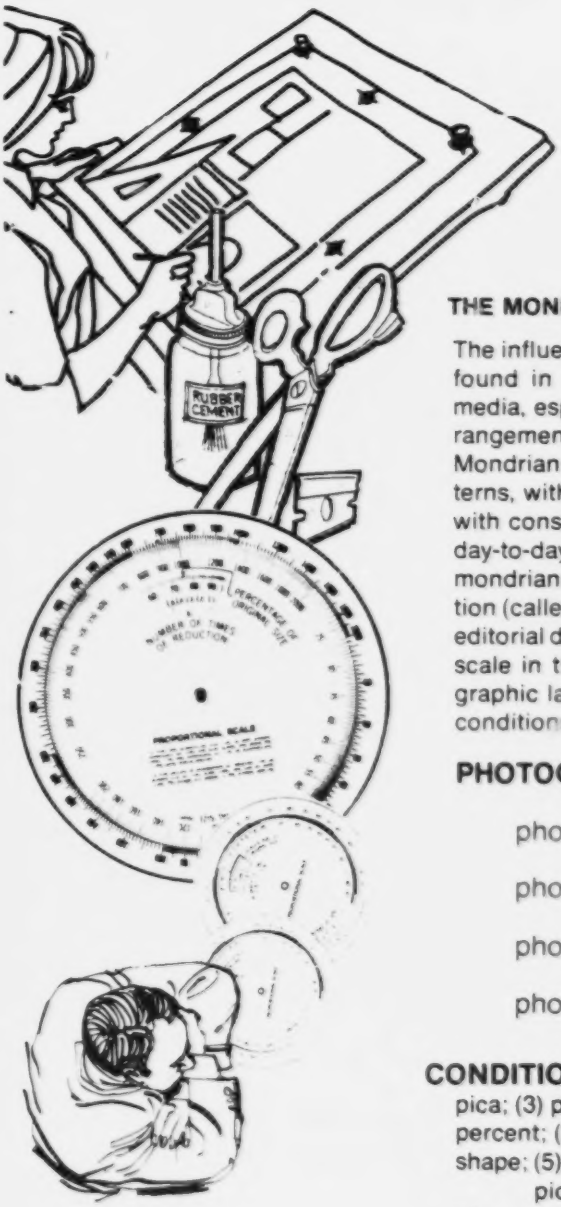

Scale of Reproduction and the Pattern of Elements in Editorial Design

THE MONDRIAN STYLE IN PICTURE LAYOUTS

The influence of the Dutch artist Piet Mondrian (fl. 1936-42) can still be found in many present-day, two-dimensional designs for the print media, especially in magazine work in which certain photographic arrangements have come to be called "picture" layouts. The paintings of Mondrian are generally characterized by rectangular, geometric patterns, with tight and consistent internal separation of elements, along with considerable alignment at the outer edges of the designs. In the day-to-day routine of magazine work, the ability to generate the visual mondrian flavor requires good mechanical skills in scale of reproduction (called SOR in course MC 301). For example, assume the role of an editorial designer and demonstrate your skill in the use of a proportional scale in this situation. The managing editor has suggested a photographic layout in the Mondrian style, with the following elements and conditions:

PHOTOGRAPHS:

photograph 1 OS size =

photograph 2 OS size =

photograph 3 OS size =

photograph 4 OS size =

CONDITIONS: (1) No cropping; (2) internal separation is set at one pica; (3) photograph number must be used at an SOR of percent; (4) the four photographs must be arranged into a rectangular shape; (5) the final depth of the rectangular pattern of elements must be picas; (6) photograph number must have a final of picas; (7) write any other conditions in the space below.

Can a good pattern of elements be achieved with these elements and under the conditions as set down by the editor? (A) Make a layout with these elements, and show a 4-item specification for each photograph. (B) Include the so-called "make line" in each specification. (C) A word description of how you approached the problem would aid in the evaluation of your solution.

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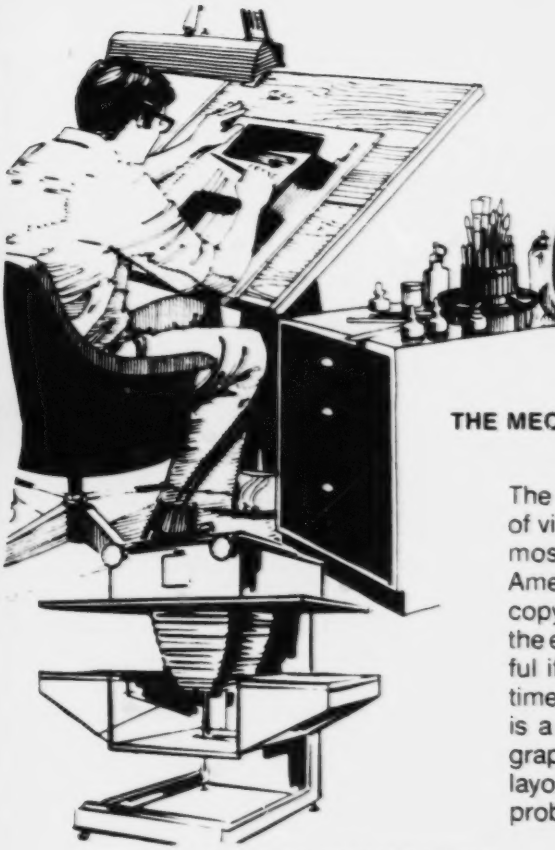

design

THE MECHANICS OF SIZING AND COPYFITTING DESIGN ELEMENTS

The work of the graphic designer involves many different kinds of visual elements, with type and photographs the key items in most presentations for the mass reading marketplace of America. An understanding of the mechanics of SOR and copyfitting is essential for effective print designs. Accordingly, the entry-level practitioner should not expect to be very successful if the elements cannot be made to fit available space. The time to find out about fit is at the copyfitting stage of layout. Here is a typical example of the manipulation of type and photographs to fit format space. (The instructor will provide a rough layout of the elements and other design conditions for this problem. Draw the layout in the space below, left.)

DRAW LAYOUT HERE

type specifications:

amount of copy:

sizes of photographs:

pica size of format space:

additional instructions:

(A) Provide the answer in the form of a layout (similar to the one above) that shows all dimensions, specifications and other conditions as set forth in the problem. (B) Show 4-item specifications for photographs directly on the layout. (C) Show copyfitting formulas and computations, and such data as TS/BS, CPP, PD, TL, TC, and CPL may be recorded directly on the layout and within the copyblock.

student name & number	section	NO.	deadline information			grade
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interaction item number 153

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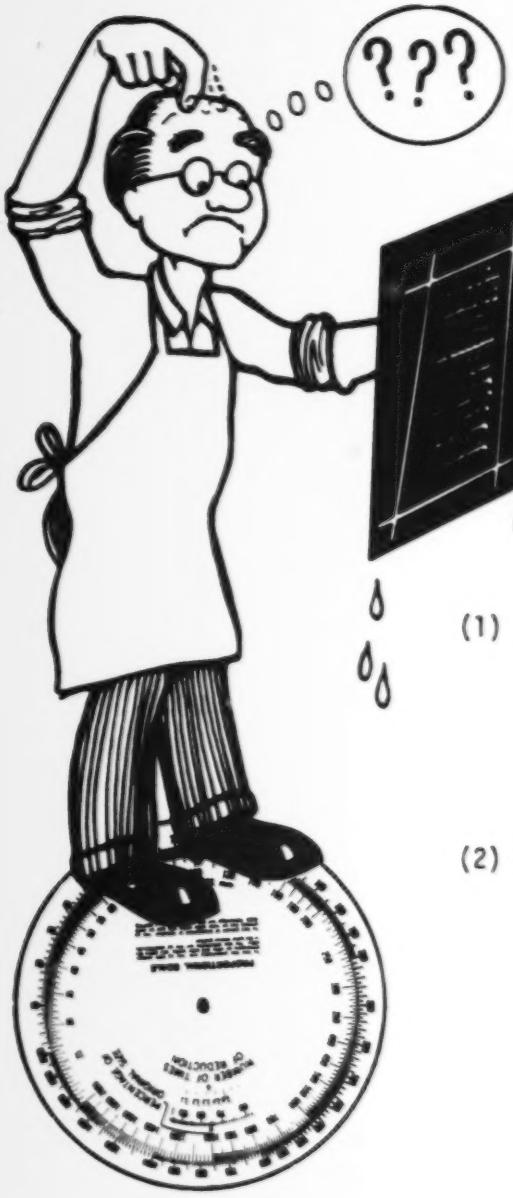

SIZE

BASIC TECHNIQUE IN PHOTOLITHOGRAPHY

(1) Artwork for the assignment:

(a) artwork will be provided
(b) select artwork from Volk art file
(c) student must furnish artwork
(d) see the laboratory assistant for artwork and/or instructions

(2) What work is to be done?

(a) make a negative to exact size, where WIDTH = _____.

(b) make a negative to exact size, where DEPTH = _____.

(c) make a contact print from negative

(d) make a film positive from negative

(e) make "reverse" print from film positive

NOTES:

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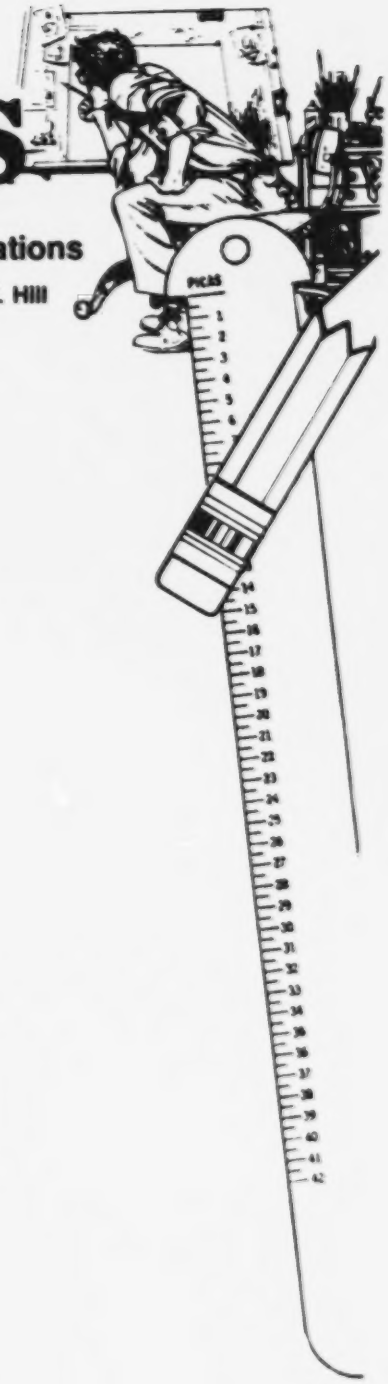
Appendix E

Paper copies of some of the overhead transparencies from the lessons on editorial mechanics from the course MC 301

Formulas

for typefitting and copyfitting in graphic communications

developed and laboratory tested for more than ten years by Donald E. Hill



$$PD = TL \times BS \div 12$$

$$TL = PD \times 12 \div BS$$

$$CPP = 342 \div AL$$

$$CPP = CPL \div M$$

$$CPL = M \times CPP$$

$$CPL = TC \div TL$$

$$TL = TC \div CPL$$

$$TC = TL \times CPL$$

$$M = CPL \div CPP$$

WHERE:

M = line length of type
AL = Alphabet length in points
PD = Depth in picas
TL = Total lines in depth or copy
CPP = Characters per pica
CPL = Characters per line
TC = Total characters
BS = Body Size of the type

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Typefitting

TYPEFITTING IN GRAPHIC DESIGN AND PRODUCTION

BASIC TERMS

type page size (TPS)
pica depth (PD)
total lines (TL)
film advance (FA)
type size (TS)
line space (LS)

(1)
TL = 84
TYPE = 8/9
PD = ?

(2)
PD = 60
TYPE = 9/10
TL = ?

(1) format size
(2) cutline
(3) reader type
(4) body copy
(5) straight matter
(6) caption
(7) title
(8) display
(9) internal space

TYPEFITTING FORMULAS:

(A) $PD = \frac{TL \times BS}{12}$

(B) $TL = \frac{PD \times 12}{BS}$

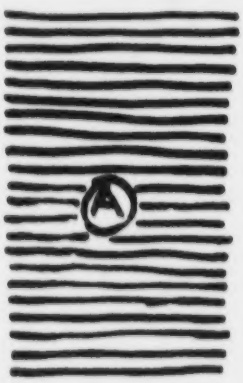
Basic Typefitting

the fundamental task in graphic design

TYPEFITTING FORMULAS:

(A) $PD = \frac{TL \times BS}{12}$

(B) $TL = \frac{PD \times 12}{BS}$



DESIGN SITUATION (A):

(1) manuscript will make 54 lines of type
(2) type size is nine point
(3) type body size is ten point
(4) line length is 25 picas
(5) How deep in picas is the block of type?

DESIGN SITUATION (B):

(1) space for the type measures 25X49 picas
(2) type size is 12 point
(3) film advance is 14 point
(4) measure is 30 picas
(5) Will 50 lines of type fit into the space?

WILL THE TYPE FIT THE SPACE?

Design and Typography

HOW TO COMPUTE DEPTH OF TYPE

design situation

72 lines of 10-point type
leaded one point
set on a 25-pica measure
How deep in picas
is this type?

MARK COPY BLOCKS
WITH CAPITAL LETTERS

PD FORMULA

$$PD = \frac{TL \times BS}{12}$$

solution

(1) Convert TL to depth in points
(multiply TL times BS)
(2) divide depth in points by 12
(there are 12 points in one pica)
(3) results is depth in picas

$$PD = \frac{72 \times 11}{12}$$

$PD = 66$ depth of 72 lines

SYMBOLS

PD — PICA DEPTH
BS — BODY SIZE
TL — TOTAL LINES

Typefitting

in the world of graphic communications

TYPEFACES:

(1) 85 lines of 9/10 type, on [25]

(2) 81 lines of 8/8 type, on [30]

(3) 60 lines of 7/8 type, on [25]

(4) 72 lines of 9/9 type, on [25]

QUESTION:

(A) Which TYPEFACE and TL situations listed above can be used to fill a space that measures 25 picas WIDE and 54 picas deep?

(B) Show set up of formulas for typefitting, all computations, and solutions for each typeface.

① TYPE = 8/9
PD = 30
TL = _____

② TYPE = 9/10
TL = 48
PD = _____

scale of reproduction Guidelines

SOR GUIDELINES

(1) round up to full percentage point
(2) reduce the elements only
(3) enlarge only for design fit
(4) make SOR large as possible
(5) crop where appropriate
(6) always specify SOR
(7) consider size and shape of element
(8) relate element to format
(9) concurrent design planning

SOR

DESIGN AND SCALE OF REPRODUCTION

four-item specification

(5)

ORIGINAL SIZE =

SOR =

FINAL SIZE =

design technique

(1) measure item for original size in picas

OS = 28 X 48

(2) make the design decision → MAKE DEPTH = 36

(3) set up the problem in data form

(13)

OS = 28 X 48

SOR = ↓

FS = __ X 36

(4) calculate the solution and analyze

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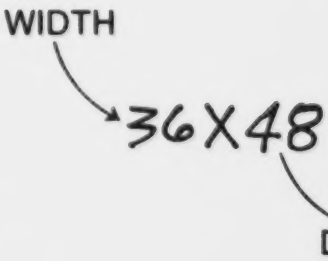
Design

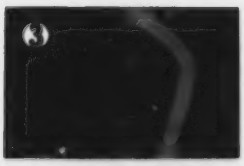
Two-dimensional design and the scale of reproduction

equal depth



equal width

flavor of design with pattern of elements



key illustrations with numbers

FOUR-ITEM SPECIFICATION FOR ILLUSTRATIONS

(3)
OS = 38X47
SOR =
fs = 25X31

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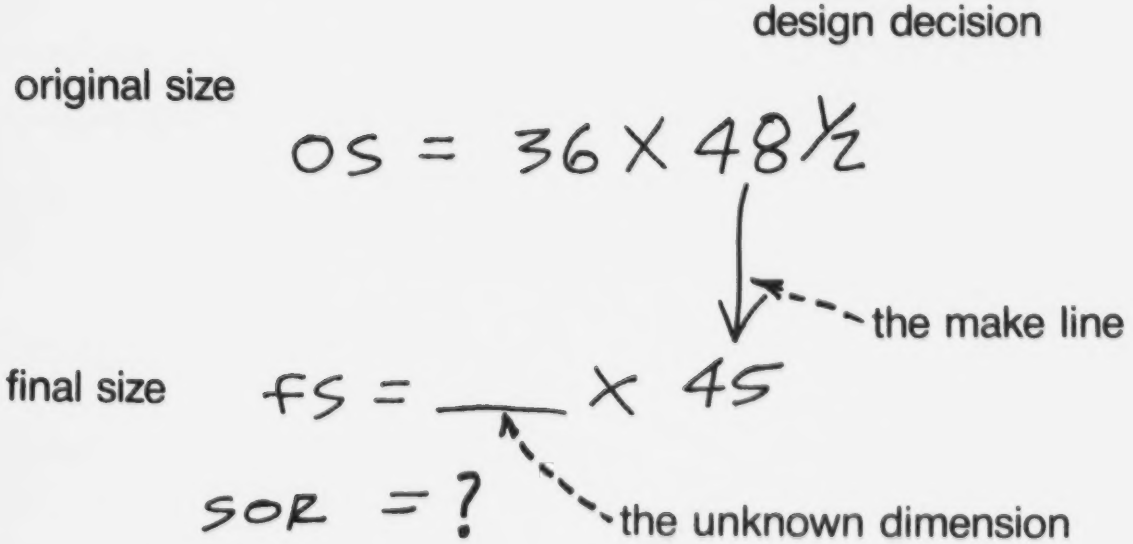
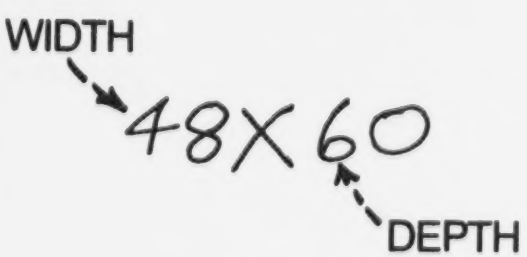
SOR

HOW TO SET UP THE ARITHMETIC OF SOR



scale of reproduction (SOR)



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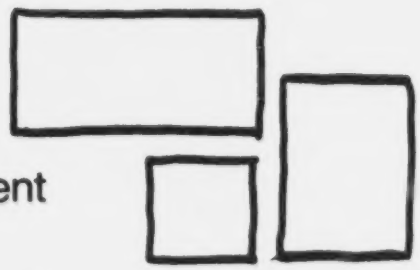
Cropping

HOW AND WHY IN COMMUNICATIONS DESIGN

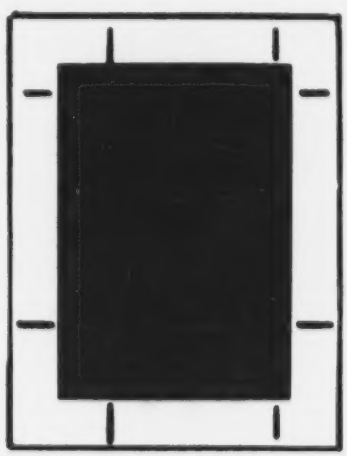


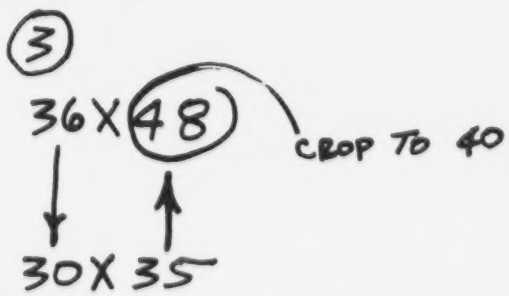
(A) Definition of cropping:

(1) to remove unwanted content
(2) to make a fit in layout
(3) to change shape of elements

(B) How to indicate in layout:

(1) how to utilize crop marks
(2) style for 4-item specification
(3) SOR and cropping





(C) Summary statements:

(1) never cut original photographs
(2) don't write on back of photographs
(3) must adhere to some cropping style
(4) catalog and file all photographs

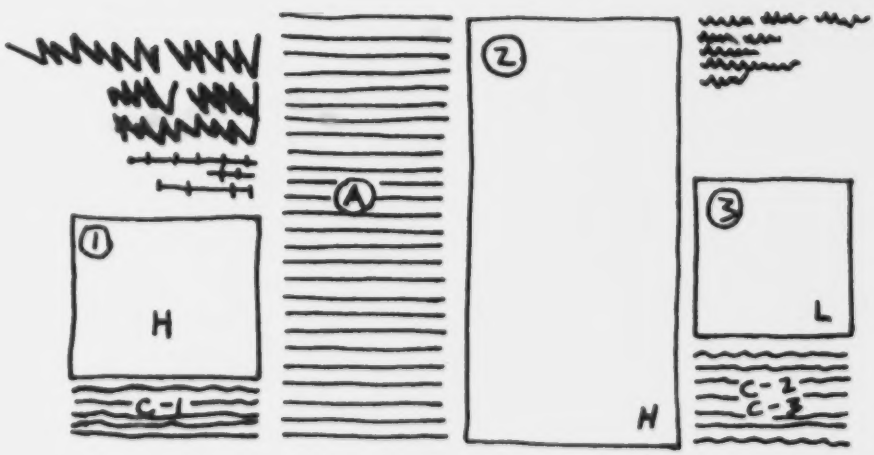
Practice problems in basic two-dimensional design

(1) elements of equal depth
(2) two elements of equal width

DESIGN SITUATION A

(2)
OS = 48X60
SOR =
FS = _ X 50

TYPE = 9/10 COPY (A)
TL = 60
M = 25



DESIGN SITUATION B

TYPE = 10/11
M = 25
TL = 5
OUTLINE C-1

(1)
OS = 36X48
SOR = ↓
FS =

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Design:

scale of reproduction and the manipulation of type

ELEMENTS

(1) 8-item type specification
(2) illustrations and/or line art
(3) text copy
(4) cutline

(3)
OS = 48X60
SOR = ↓
FS = __ X45

(1)
OS = 52X65
SOR = ↓
FS = __X__

PD * 3 = 15
PD * 2 = 27
CUTLINE PD = 8

BEST COPY AVAILABLE

06-point
07-point
08-point
09-point
10-point
11-point
12-point
14-point
16-point
18-point
20-point
24-point
30-point
33-point
36-point
42-point
48-point
54-point
60-point
72-point

Definition of "Common" type sizes

A range of type point sizes that have become standard through trade practice; point sizes that simplify the mechanics of typography, and are readily available from printers and typesetters.

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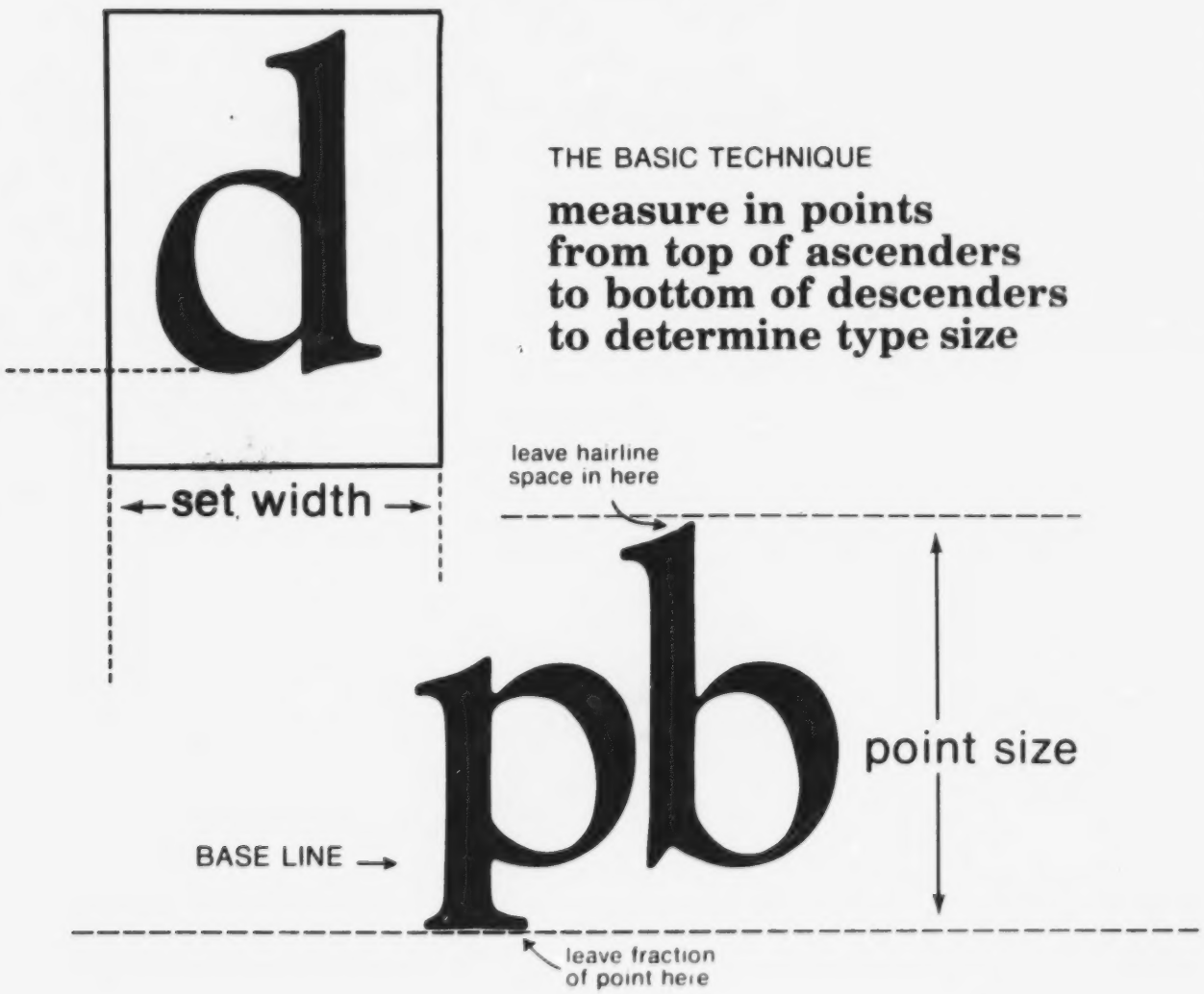
Type Measurement

HOW TO ESTIMATE TYPE SIZE



NOTE: The face of type from top of ascenders to bottom of descenders cannot take up the complete point size. A small fraction of space must remain in order to prevent ascenders and descenders from touching in consecutive lines of type.

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MEASUREMENT

Measurement!

How to measure in the graphic arts.

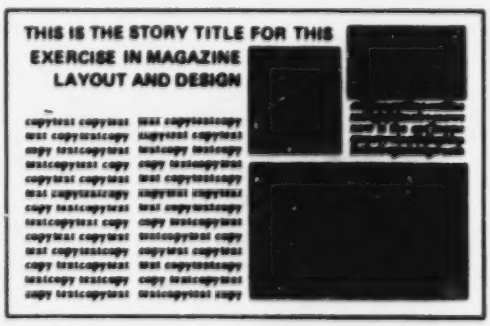
CUTLINE cutlinecutlinecutli linecutlinecutlinec cutlinecutlinecutli

ITEMS THAT REQUIRE SPECIFICATIONS

(1) type size
(2) body size
(3) leading
(4) film advance
(5) line space
(6) dimensions
(7) margins
(8) advertising space
(9) distances
(10) line length
(11) column width
(12) set width
(13) measure
(14) size of elements
(15) advertising depth
(16) format size
(17) indentions
(18) border tape width
(19) width of rules
(20) internal consistency

POINT SYSTEM UNITS

one point = .01384
one point = 1/72 inch
72 points = one inch
12 points = one pica
one pica = 1/6 inch
one pica = 12 points
six picas = one inch



MAGAZINE LAYOUT

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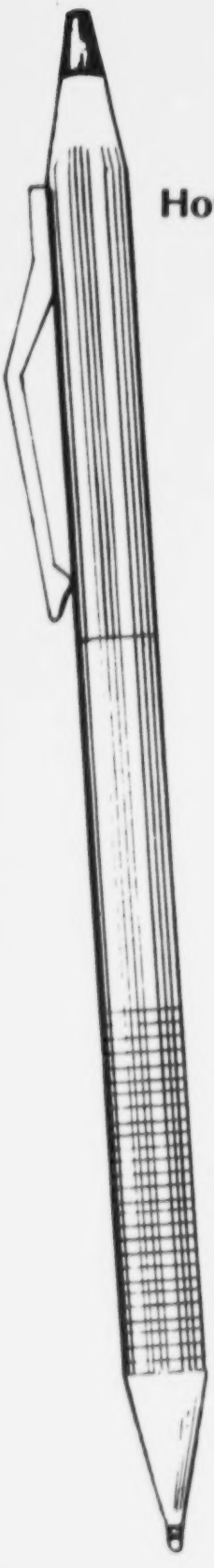

8-item Type Specification

How to write the 8-item typographical specification

BODONI BOLD ITALIC

18/18]28[

ABCDEFG
HIJKLMNOPQRSTUVWXYZ&
abcdefghijklmnopqrstuvwxyz
1234567890

The eight items in the type specification

(1) type family
(2) type point size
(3) leading
(4) measure
(5) character composition
(6) classification
(7) family branch
(8) appointment of space

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In a world of multi-colored plastic junk, don't let graphic arts craftsmanship die in America!

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